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GREECE AND MODERN ATHENS.

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Some years ago, a traveller, while on the voyage from Western Europe to Athens, was addressed with the following words: "Ah! so you are going to Greece without being compelled; you go the right way to work to look for amusement. Imagine mountains without trees, plains without grass, rivers without water, a sun without pity, dust without mercy, fine weather a thousand times more tiresome than rain; a country where the vegetables grow ready cooked, where the hens lay eggs hard boiled, where the gardens have no leaves, where the color green has been effaced even from the rainbow, where your weary eyes will look for verdure and find not even a salad to repose upon." But the traveller, nothing daunted by this startling picture of a country of which his dreams had been so fair, pressed on to know the worst—to find that, while these words contained a modicum of truth, the land of Greece is

yet a realm of beauty; worthy, not merely of a poet's pen, but of the personal observation of every lover of nature and art, as well for the fascinations of its present as for the glory of its past. Indeed, there is no country in Europe which so well deserves the attention of the student and traveller, as none contains more beautiful scenery, sites of greater historic interest, or such matchless treasures of art.

Hitherto, Greece has lain beyond the route of ordinary travel. Of the thousands who yearly seek Italian skies, hardly one in a hundred crosses over to the land of Plato and Pericles. In comparison with Italy, Greece is, therefore, almost a terra incognita. Though situated in Europe and not far from Italy, it somehow appears more remote than its distance from the Italian peninsula would seem to warrant. This is not, however, without reason, for Greece, as it were, faces the East, most of its cities and harbors lying on that side; while Italy, on the contrary, faces the West. The two peninsulas lie back to back, and while Italy is a part of Western Europe, Greece belongs to the Orient. Its people evidently recognize this fact; as, in Athens, when one speaks of going to France or England, he says, as we do, that he is going to Europe, as if he lived in Asia or in Africa.

So unfamiliar is this classic land that even the proper name of the country, Hellas, and that of its people, Hellenes, are doubtless unknown to many. When a country has so euphonious a title as Hellas, and one so easily transferred to our own language, it does seem a pity that we should persist in calling it by the unmelodious and suggestive name of Greece, merely because

the Romans, more than two thousand years ago, persisted in calling its inhabitants Graeci or Greeks, instead of their proper title, Hellenes.

This country of Hellas, then, is a very small one, at present comprising only half as much territory as the State of New York. Its population is about two millions, and there is one very remarkable fact in connection with it, which is quite unexplainable and unparalleled, except in the frontier settlements of the West, where the cause is obvious. There are, in this country of Hellas, nearly five per cent. more men than women. It is, therefore, the paradise of women, as marriage is almost universal; so much so that I remember meeting but one single lady of uncertain age, while I was in Athens.

In ancient days, Hellas, in the strictest sense of the word, comprised a territory even smaller than now, Thessaly not being included; while, in later days, on the contrary, Macedonia was not deemed a foreign country, but claimed a share in the glories pertaining to the name of Hellas.

It is, surely, a matter of wonder that a country so limited in extent, should, in the short space of two centuries, have produced philosophers, statesmen, poets, orators, and historians, such as all the rest of the world has not been able to surpass, and such marvels of sculpture and architecture as it has never equalled. We must not, however, forget that the small area of continental Greece by no means contained all those who contributed to her fame and shared in her glory. The islands of the Aegean, the coasts of Thrace and Asia Minor, Sicily, and some portions of Italy were

either wholly inhabited or partially colonized by Greeks, who, preserving unadulterated their race and language, sharing the same ideas and worshipping the same gods, carried Hellas with them and formed an important factor in Hellenic civilization. In the Aegean Sea there is hardly a solitary spot between sea and sky; so the hardy mariner early ventured forth from the mainland, and passing from one island to another soon crossed the sea. Accordingly, from the days of Priam until now, the same peoples with the same language and customs have inhabited both shores. Arbitrary political divisions have made only an external separation, and the Greek of to-day is as much at home in Smyrna as in Argos.

To the peculiar physical and climatic characteristics of the country, the rapid and artistic development of its inhabitants was doubtless in some measure due. The Aegean Sea apparently had a wonderful power in breaking up the land into islands, peninsulas, necks, and promontories, furnishing innumerable harbors. Such a country is sometimes called Greek, as this characteristic is here most strikingly manifest, and is shared with continental Hellas by all the coasts which the Greeks inhabited.

Hellas is cut off from the Danube valley on the north by high mountain chains, extending from the Adriatic to the Black Sea, the Thracian Haemus, with impervious ridges. The country develops towards the south, intercourse with the East being especially easy, as that side is most favored with harbors.

This was particularly fortunate for the people in the days of their dawning civilization, as thus they were

brought into contact with the older nations of the Orient. Thence the Greeks gathered germs of every kind of knowledge, which under their own sapphire skies bore the finest fruits and flowers of antiquity. Italy, facing the west, was less open to eastern influences, and hence the bloom of her civilization was several centuries later.

But the whole of the peninsula was not equally favored. Albania and Illyria, to the northwest, consist of rocky ridges and narrow defiles, with a savage, inhospitable coast; and have always been the home of barbarians. Macedonia, east of the Scardus pass, forms a striking contrast, containing broad lowlands and great rivers, belted in by chains of lofty mountains. Macedonia and Thrace are connected with the Greek world by the formation of the coast, but the interior differs, being a highland country cut off from the sea. Advancing into Thessaly we pass on its northern border the majestic form of cloud-capped Olympus, rising to a height of ten thousand feet. To the south the country loses a little of its Alpine character, though the landscape in some quarters of Thessaly, with its rugged mountains, frowning cliffs, and dusky glens is still so severe that the Greeks here pictured the scene of the terrible conflict among the gods, when hills were torn up to serve as missiles, and Pelion was piled on Ossa. Now the formation increases in multiplicity, and bays, corresponding to the ramifications of the mountains, open the land from east to west. Here, at 39° N. Lat., begins Central Greece, Hellas in the strictest sense. In the west the region of the Achelous River in Epirus is excluded from the general breaking up of Greece, as

it was, also, from its general development; while on the east the Oeta chain extending to the Malian Gulf forms the pass of Thermopylae, where there is only the breadth of a road between the morass and the rocky heights. From here across to the Corinthian Gulf is a distance of only twenty miles. This is an isthmus from which the peninsula of eastern Central Greece extends to Sunium. Here is the main range of Parnassus, 8000 feet high, held sacred not only for the celebrated oracle at its base, but also as the starting point of a new human race, the scene of the Deucalion legend of the flood, when he and his wife Pyrrha, saved on the mountain from the destruction which overtook mankind, repeopled the earth by throwing behind them the stones, which became men and women.

Near Parnassus is Mount Helicon, haunt of the Muses, and next, Cithaeron and Parnes, separating Attica from Boeotia. These two districts, while adjacent, are wholly dissimilar. Boeotia, though having water on both sides, is practically an inland country, since the mountains rise so abruptly from the sea that there is hardly any coast; and in the interior, as at Thebes or Orchomenus, one would have no reason to imagine that the sea was within a thousand miles. It has damp fogs and stagnant waters, especially the large and shallow Lake Copaïs, which frequently overflows its banks. As a consequence, there is a rich soil and luxuriant vegetation; also, as a consequence, the people have always suffered from the malaria, which has a debilitating effect, not only upon the body, but on the mind; and this, no doubt, was the reason for the well-known stupidity of the Boeotians, who were a notorious

contrast to their brilliant Attic neighbors. It is said, too, that a similar difference may be observed at the present day.

Attica, on the contrary, projects into the sea, with gulfs and bays, and has the clear atmosphere of the island world to which it belongs. Its mountains are near the centre, and it has a dry, rocky soil, so that greater labor was needed to develop its resources.

The Peloponnesus is, in itself, a whole. Arcadia, in the centre, is surrounded by a mountain chain having branches in the surrounding districts, which are terraces like Elis and Achaia, or have new mountain ranges forming new peninsulas, like Messenia, Laconia, and Argolis.

Arcadia is not at all the ideal landscape which one might suppose. It was the later Roman poets, and not the Greeks, who described this district as a smiling land, with grassy vales, watered by gentle pellucid streams, and inhabited by picturesque shepherds and sheperdesses, tending their flocks and making love in romantic fashion. It is, however, by no means a landscape for an opera, but the least beautiful region of Greece. The scenery is forbidding and monotonous, a bleak, unlovely table-land, covered with low, steep mountains and marshy plains. The original river Styx is still to be found here, so violent, noisy, and terrible that the ancients made it a stream in the lower world. In some of these river beds a torrent will sometimes appear so suddenly that in an hour there may be a large stream where one has walked dry shod; but in ordinary times these little rivers remind one of children put to bed in a grandfather's four-poster.

In the manifold contrasts there are certain laws which govern the development of the country. The Greeks were debarred by mountains from intercourse with the mainland on the north, while the mountains and the sea co-operate to divide the country into sections, the sea at the same time furnishing a means of intercourse between the sections, and also with the opposite coasts. In the northern highlands the people were compelled to be peasants; a hardy race of hunters and shepherds, simple and natural. Thence they issued south where their mission was to create states and establish intercourse with neighboring peoples. Soil is not everything, but it is important. The inhabitants of a plain are defenceless, and millions easily become subject to one ruler. But in the mountains, as in S[illegible]rland, courage rises with the ability to defend. The multiplicity of culture and manners, the varieties in language, as well as the desire for political independence found among the Greeks, resulted from the mountains. At the same time, the valleys, though secluded and guarded, were open to commerce. The sea was easily agitated and calmed, having a multitude of safe bays opening into it, but its secrets are never wholly learned, hence it promotes progress. Greece was much less fertile than Asia Minor, and labor and struggle were needed to develop its resources. Within its narrow boundaries, however, the climate goes from beeches to palms. North of the Aegean Sea the climate is like that of central Germany, while in the Peloponnesus semi-tropical fruits are abundant. Mountains like Athos bear every species of tree that is found in Europe.

Thessaly produces few olive trees, and the entire Pindus is destitute of the flora of Southern Europe, but in the latitude of 39° the warm sea air penetrates into the interior. Phthiotis produces rice, cotton, and the olive. Euboea and Attica have scattered palms, and the date-palm in Messenia bears fruit. At Athens, southern fruits need special cultivation, but in Argolis, just across the Saronic Gulf, lemon and orange trees grow in a forest. There is no other region of the globe where zones of climate and of flora follow in so rapid succession. As a result, there is great variety in the living forms of nature, and a diversity of productions, which early aroused the attention of men and promoted traffic.

Such a country could not fail to mould its inhabi tants, at least when the race was young; to develop in them activity and industry, a sense of beauty, a love of freedom and personal individuality ; and these qualities were highly characteristic of those who dwelt here. When we see how the districts are separated from each other by ranges of mountains, we cannot wonder at the peculiarities and jealousies of neighboring cities, between which intercourse was so difficult. But in spite of these divisions, the Greeks had a distinct nationality and everything was stamped with their own life ; their art, science, politics, and religion.

Their physical condition is shown by their plastic art. They were of average height, neither fat nor lean. In their delightful climate and with their simple manner of living, sickness and deformity were unnecessary and beauty was the rule. They were proudly conscious of their physical and mental gifts ; and, in fact

seem to be so to-day; though in coming in contact with this spirit at the present time, one would be apt to characterize it as vanity and conceit.

The general history of Greece in the classical period is more or less familiar to all. The days of her prosperity were brief, indeed, but glorious, with a glory that is imperishable; and though two thousand years have passed since then, there has never been a time within the period of modern history when so great an interest as at present has been felt in the study of the life and the works of that remarkable people. It seemed almost as if the Greeks had dropped out of existence under the sway of the Byzantine Empire and the Moslems. Indeed, the country did relapse almost into a wilderness. But in the early part of this century, a new life dawned, and once more Greece took her place among the nations.

The invasion of the barbarians in the dark and middle ages, and the stern dominion of the hated Turks have left heavy traces upon the land; and while the nation, since gaining her freedom, has advanced with rapid strides, it must be remembered that that was hardly sixty years ago. Athens itself was but a collection of a few miserable huts in the vicinity of the Acropolis, when the seat of government was removed thither from Nauplia in 1835. Its rapid growth to its present population of more than one hundred thousand is like that of many of our western cities. It is due, however, simply to its being the seat of government, and not to its containing within itself the elements of so great prosperity. The transfer of the capital from Nauplia to its present site was therefore a matter of

sentiment, in which feeling, not only the Greeks, but the whole western world had a share.

Who that has mourned over the downfall of Athens at the close of the Peloponnesian war, and despised the envious hatred of the Spartans, incompetent for the leadership themselves, and yet unwilling to see Athens possessing the artistic, literary, and political supremacy, does not now rejoice that at length, after many weary years Athens again takes her place as the leader of united Greece, a place which no envious Spartans, Thebans or Corinthians will be likely ever again to wrest from her?

Here, as formerly for philosophy, is now the principal site for the study of the antiquities of Greece.

To reach the "violet-crowned" city, many travellers come from Trieste by a four days' voyage, two of these over the stormy Adriatic; a route which may be convenient and even agreeable to the hardy sailor, but to be shunned by all whom Poseidon compels to pay tribute, especially at the time of the autumnal equinox, when I, unfortunately, fell a victim to the power of his majesty. For two days there is no land in sight, but the two days following, spent in sailing past the islands of the western coast, and around the Peloponnesus, are almost a compensation for the wretched monotony of the first half of the voyage.

The first Greek soil to meet our eyes was that of Corfu, ancient Corcyra, where now, as in former days, there is a thriving commercial city.

The glimpses which we gained as we sailed along, of the islands and distant coasts of the Peloponnesus, prepared us to behold a country unlike any that we had

previously seen. Here were rugged, almost precipitous promontories, rising abruptly from the sea, apparently barren, and destitute of human habitation. No tints of green gave evidence of pasture or wood, and no curling smoke indicated the presence of life. Far away, indeed, one could fancy that along the head of some deep gulf, the coast was less frowning, and that a village was there nestled amid fertile fields; but that was in the dim distance. Near us, all was rocky, barren and precipitous; though in rounding the southern extremity of the Peloponnesus, we strained our eyes to catch sight, if possible, of a hermit who dwells on the face of one of those frowning bluffs, five hundred feet above the sea, his only companion the distant passing sail, for the benefit of which he carefully keeps a light burning through the darkness.

It was dusk ere we reached this promontory of Sunium, so that we missed the pleasure of descrying in the distance the historic spots which we were eager to behold. Our ship was even compelled to anchor outside the ancient harbor, the entrance to which is so narrow that one might well prefer daylight for its passage.

Early next morning we were on deck and, overlooking the fine harbor at our feet, gazed eagerly in search of the far-famed Acropolis, and at the beautiful panorama of plain and distant mountains spread out before us.

But the shouts of the boatmen, who, in their little skiffs, surrounded the vessel, recalled us to the prosaic necessities of baggage and debarkation, and soon our feet were planted on classic soil. A railway now connects the busy seaport of the Peiraeus and its forty

thousand inhabitants with the more aristocratic seat of government four miles distant, but the stranger on his arrival, in order to save a change from carriage to car and again from car to carriage, is more likely to engage one of the waiting vehicles, which takes him and his luggage direct to his hotel in Athens. It is, however, a rather monotonous drive over a very dusty road; and the driver will persist in halting at the halfway house; he says, to rest his not very stalwart specimen of horse-flesh, but more likely, to have a chat over a cup of coffee or *raki* (brandy) with some of the inmates. At length the Acropolis draws near; and now, winding around its base, we soon reach Constitution Square, on the sides of which the principal hotels are situated.

To the east, looking down Hermes Street, where the principal shops are located, lies the royal palace, back of the square of green, which is planted with orange trees and oleanders.

But, before examining the city in detail, I should like to give you a general idea of the Athenian plain. You have heard how it is surrounded on all sides by mountains, except toward the sea. If you stand on the Acropolis, facing north, you have on your right Hymettus, on your left, Aegaleos, long ridges extending down to the sea. In front is Mount Parnes, and off to the right, between Parnes and Hymettus, is the graceful peak of Pentelicus. Now, facing in an opposite direction, toward the south and southwest, there is a magnificent prospect of plain, sea, and distant mountains. Four miles away, but in the clear atmosphere seemingly not half that distance, is the beautiful harbor Peiraeus and the bay of Phalerum, then the Saronic

Gulf, with the islands of Salamis and Aegina; while beyond loom up the mountains of the Peloponnesus and the Isthmus, some rising to the height of 6000 or 7000 feet, the whole forming an exquisite panorama of sea, sky, and mountain scarcely to be equalled elsewhere.

Hymettus, a few miles east of the city, is a very peculiar ridge of almost uniform height, rising quite abruptly from the plain, and extending for many miles with but a single break. The highest point, just east of the city, is a little more then 3000 feet above the sea. It is a desolate mountain, with round, soft outlines and dull, gray tints. These, at sunset, give place to those delicate hues which still entitle the city to the epithet, "violet-wreathed," so long ago bestowed. Parnes, nearly 2000 feet higher, with a clear outline and bold design, has a more wild and savage appearance.

Aegaleos, on the west, is lower and more irregular in outline, and farther from the city. There is a pass, now called Daphne, through which runs the modern road to Eleusis in about the same place as formerly the Sacred Way, over which the procession passed, sometimes numbering thirty thousand, for the celebration of the Eleusinian Mysteries.

To the northeast is Mount Pentelicus, whence came, and still comes, the far-famed Pentelic marble which contributed so much to the adornment of ancient Athens. It is the finest statuary marble in the world, and the mountain still contains material for twenty Parthenons.

The plain, itself, is far from being level. In the city,

besides the Acropolis, rise the hills of the Areopagus, the Museium, Pnyx, and the hill of the Nymphs, and still higher, the peak of Lycabettus, on a spur of which the royal palace is situated. Just east of the city flows the stream of the Ilissus, a mere brook, in which Socrates used to moisten the soles of his feet in the hot and dusty summer weather. That is more than he would be able to do at the present time, as this so-called river dries up altogether in summer, while in the spring, after the heaviest rains, it rushes along a foaming torrent about knee deep.

The extremely rocky soil is here apparent, and I noticed that not only does the solid rock, which has a very thin coating of soil, frequently project from the surface, but the plains are strewn with small stones. Even in the cultivated fields near Athens, small stones about the size of the fist were scattered all over the ground; and I thought the Greeks must be very lazy not to clear off their fields. But when I made such a remark to a Greek gentleman, he said: "O no! they were not lazy. They left the stones there on purpose to keep the soil down. If they took away the stones the soil was so light that it would all blow away."

On the western side of the city is the Cephissus River, somewhat larger than the Ilissus, and most useful for purposes of irrigation. Indeed, so much of the water is drawn off for this purpose that the river loses its way in the sand below the city and never reaches the sea.

In October, the season of my arrival, almost the whole landscape exhibited a warm, brown tone, which would, I am sure, have delighted the heart of any

artist, and was beautiful even to a common mortal who holds a special aversion to that color; for the varied hues of soft, warm tints, from light yellow to darkest seal-brown, were shaded and combined in a manner most pleasing, if one did not reflect that they existed where grass ought to be. The shades of brown were broken only by the green olive groves which mark where the Cephissus flows, and the gleams of gray and white marble from Hymettus and Pentelicus.

This appearance was owing to the fact that, as usual, there had been practically no rain for four or five months. Naturally, it was frightfully dusty, and most of the country looked like a desert. The summers are very hot and disagreeable, so that most of the people who can afford it go to the seashore; some have cottages at Phalerum, while others go to the islands of the Aegean, where a more equable temperature prevails. Those who remain at home spend the middle of the day in the house, even the shops being closed for several hours at noon. Business is done before nine o'clock, and again towards sunset the streets are filled with people.

At other seasons, say from the middle of October to May, the climate is most delightful. The winter weather is like our September and October days, with occasional showers and a great deal of brilliant blue sky. Wild flowers blossom all winter, and frost and snows are rare. In the winter of 1885 and '86 there was no snow on the plain, and it appeared only for a few days on the summits of the neighboring mountains. Greece is warmer than Italy, and a far more delightful winter resort.

The autumn rains quickly change the face of the

landscape, and later, as you look over the plain, you behold all shades of green intermingling with and superseding the brown, as wheat fields, green grass, and vegetables are clothing the country with verdure. The plain is generally barren of trees except for the olive groves. Hymettus is perfectly bare and rocky, but the other mountains are clothed with a scanty garb of forests. Though rather barren the Athenian plain is delicate in outline and elegant in all its aspects, like the slender, graceful race it nurtured.

The most striking object in the modern city is, of course, the king's palace. It is built of white marble and limestone, in a plain and simple style, with an Ionic portico. The king is a man of forty-five or more; a good-looking, pleasant gentleman, formerly Prince George of Denmark, a brother of the Princess of Wales. The queen is a Russian, a cousin of the present Tsar. They may be seen almost any day, driving and sometimes walking in the street like any ordinary couple. It is said to be a particularly happy royal family. The king has not much more authority than Queen Victoria, as Greece is a constitutional monarchy; but he is quite popular, while the queen is extremely beloved. They have several children, and the coming of age of the Crown Prince a few years ago was celebrated with great festivities, as was also his marriage some months later. It is quite a polyglot family, as naturally the native tongues of the parents, Russian, and perhaps I may say German, as well as the Greek language must be familiar; French, of course, the language of the diplomatic circles and of fashionable society, while English is not neglected.

On the lower slope of Lycabettus is situated the building belonging to the American School of Archaeology, an institution established in 1882 for the purpose of promoting the study of classical literature and antiquities. For several years various annual directors presided over the school, the students in which are graduates of the various colleges contributing to its support. Later a permanent director was appointed, Dr. Charles Waldstein, a graduate of Columbia College, and an archaeologist of acknowledged standing in Europe; while an annual director assists in the conduct of the school. At the present time Prof. Richardson, formerly of Dartmouth, is the permanent director, Prof. White, of Harvard, the annual director, while Dr. Waldstein still lends his assistance in superintending excavations.

Similar schools are supported by the English, French, and Germans. All of them engage more or less in carrying on excavations in Greek soil, as well as in the study of existing antiquities.

It is obvious that the city in its appearance resembles many others in Europe. The houses are nearly all of limestone and stuccoed, though a few are of white marble. The roofs are tiled with pieces in the shape of a half flower pot. The city can hardly be called beautiful, except in its location and surroundings; though, perhaps, it has reason to be proud of its appearance if its age be considered. There are now a number of broad, handsome streets, but many are very narrow and circuitous, and are lined with small, low houses. On these are queer little shops of all sorts, and the people sit out on the sidewalks, so that one usually

finds it more convenient in these quarters to walk in the middle of the street. From some of these shops savory odors greet you; and you see, exposed for sale, innumerable little fishes, from three to six inches long, all steaming hot from the fat kettle; or perhaps, I should say, the olive oil kettle. One sees also for sale many hot cakes about three inches in diameter, which are fried in a similar manner. These are very light, and when eaten with honey form a breakfast dish fit even for an American.

The Greeks of the lower classes live in a very simple and frugal manner. Their earnings are small, laborers receiving not more than twenty-five or fifty cents a day. Many of the houses, especially in the country, consist of only one room, which is used alike as parlor, dining-room, kitchen, and sleeping room for the family. The majority, perhaps, have not more than two rooms. People generally have no fire (they go out of doors to get warm) except what is needed for cooking purposes, and that is extremely little, as bread is always bought, and the poorer people live mainly on bread and olives; in Athens, no doubt, eking out their scanty meal with some of the little fishes or hot cakes so freely exposed for sale. Cheese is also a favorite article of diet, and macaroni is much used. The olives are different from those generally seen here, being left on the tree till they are quite ripe, *i. e.*, black. They are then packed down in salt, and in a month or so are ready for eating. They then present the shrivelled appearance of a stewed prune, but are much smaller. They seem to be an extremely popular article of food, being very cheap as well as nutritious. The wealthy people live more in ac-

cordance with the French style; ordinary articles of food are of moderate cost, except that beef is very dear, and milk and butter are still more so, as pasturage is poor and very few cows are kept in Greece. Indeed, in the rural districts, it is impossible to get any beef or butter at all, and sheep's milk is the best obtainable. In Athens the hotels are well supplied with comforts both for the outer and inner man; but in making an extensive tour in Greece, one must be prepared to undergo various privations.

The people are extremely ambitious, and the youth are eager to learn. The small boy does not have to be driven to school, but is anxious to acquire knowledge. As a result the Greeks are the best educated people in the world, not that they have so many eminent scholars, but they have a smaller percentage of illiteracy than any other nation, even Germany, can show. There are numerous public schools and gymnasia scattered all over the country, and Athens boasts of a fine University, organized on the German system, with faculties of theology, law, medicine, and philosophy. It has also a school of chemistry and pharmacy, an observatory, and a library of one hundred and fifty thousand volumes. About three thousand students are enrolled and there is a large faculty. Adjoining the University is the Academy of Science for the accommodation of Greek and foreign savants. It is built of Pentelic marble, in the Ionic style of architecture, with colonnades and sculptured pediments. It is adorned with painting and gilding after the ancient style, and the effect is certainly charming under the brilliant blue sky of that region. In the central pediment, there is

a group of marble statues representing the birth of Athena, while the gables on the right and left are adorned with statues in terra cotta. Athena and Apollo surmount the lofty Ionic columns in front, which are not in the Greek style, while sitting figures of Socrates and Plato adorn the entrance.

Churches are numerous in Athens, and an old Byzantine church of the eleventh century stands in the middle of Hermes Street. The ceremonies of the Greek Church do not, to the unintelligent observer, differ very greatly from those of the Roman Catholic, though the edifice itself is adorned with paintings, but never with sculpture. In belief, there is considerable diversity, and more sympathy exists between the Greek and English churches than between the Greek and the Roman Catholic. The parish priests marry, though not a second time, and when one is promoted to a bishopric, his wife must be put away. A fact of some interest, perhaps, especially to Baptists, is that the Greeks practise immersion only as baptism, as they have done since the dawn of Christianity.

The people cannot be said to be very religious or spiritually minded, but it is considered a matter of disloyalty to the State not to support the State religion, and the Greek field is for that reason a very difficult one for foreign missionaries. Moreover, as the New Testament was written in their own language, they naturally think that they do not stand in need of instruction from outside barbarians.

The language spoken, both in Church services and by the people generally, is of course modern Greek. The ancient language was fully developed before the

dawn of history, and contrary to the impression of many it has lasted to the present day. It is therefore a mistake to speak of the Greek as a dead language, like the Latin. Of course there has been a gradual growth and change, but the difference between Modern and New Testament Greek is hardly so great as between that and classical; much less than exists beween the English of the present day and that of Chaucer. The difference in pronunciation, however, is so great that it is often impossible for the classically trained ear, at first, to recognize the most familiar words. There is considerable difference, however, between the written and spoken language, the newspaper and literary Greek being much more like the classical, while the colloquial Greek contains a considerable admixture of Turkish and Italian words. But the Greeks naturally despise the Turks, and are all united in the effort to expel foreign words from their language; so that it seems probable that they will even succeed in what has been pronounced impossible, in making their language grow backwards.

In fashionable society, however, French is generally spoken. All wealthy people have French governesses for their children, and many Greeks speak German and English in addition. The French fashions in dress also predominate, though some few of the city people and the majority of those in the country have a fashion peculiar to themselves.

Passing from Constitution Square down Amelia Street we shall be very likely to see a steam tram car, which runs from here to Phalerum. Not far from the square we reach Hadrian's Arch or Gate.

To the east of Hadrian's Arch is the Olympieum or Temple of Olympian Zeus.

On our way to the south side of the Acropolis we might pass the choragic monument of Lysicrates, and soon after we should come to the theatre of Dionysus and the Odeium of Herodes Atticus, and so on to the Areopagus, which lies on the northwest side of the Acropolis, a little lower, and quite near to the ancient market place and the busiest portions of the old city.

Somewhat further to the north stands the Theseium, the best preserved edifice in ancient Greece. Though inferior in grace and splendor to the Parthenon, and in beauty and elegance to the Erechtheium, its almost complete preservation causes it to make an extraordinary impression.

Not far beyond and close to the Dipylon Gate, is a spot which must be of absorbing interest to everyone; an ancient burial ground of the Greeks, formerly the only one known in Hellas, and still by far the most important.

The modern cemetery lies on the opposite side of the city, to the southeast, beyond the Ilissus River. Some of the ancient customs are still preserved, and one day in spring, as in former times, people go out with offerings of cake, wine, and flowers, which they place upon the graves, where they also burn candles. Here the mourners sit, and many of them give way to violent grief, wailing in a perfunctory manner over the death of some member of the family who, as we could observe from the tombstone, had passed away several years before. Others, however, deposit their gifts more quietly. The use of a hearse at funerals is a very

recent innovation. A few years ago the body was borne through the streets on a bier, with the face exposed to view. The mourners walk along near the corpse followed by their friends and neighbors. Several priests in black robes usually head the procession. I suppose that, by the law of contrast, funerals are often associated with weddings.

The Greeks are generally a very friendly, hospitable people, willing to allow strangers the privilege of witnessing some of their peculiar ceremonies. And so we secured the honor of an invitation to attend a wedding, though we had no previous acquaintance with any of the members of the family. The ceremony was to take place at eight o'clock.

Arriving at the house a little before the appointed hour, we were welcomed by the sisters of the bride who escorted us at once into the best room. In the centre of the room was a small table, upon which was soon placed a large salver, bearing a quantity of *confetti* of various colors and sizes, and two wreaths of artificial orange blossoms tied together with long, white satin ribbons. A thin quarto copy of the Gospels, with a cover of heavy embossed silver, also lay upon the table. There were besides two large bundles, done up in white napkins, which excited our curiosity considerably. In the meantime, four priests had arrived attired in their customary dress of long, black gowns, with high black hats on their heads. Soon after, the groom appeared. Next we were astonished to behold the four priests arise, lay hold of the two bundles and from them bring forth their outer garments, gorgeous trappings, in which they proceeded to invest themselves in most undig-

nified haste before the assembled company. Just then the bride came in, quite informally, was introduced to us and spoke to other friends, and then she and the groom took their position in front of the sofa where we had been sitting. The four priests in their colored vestments, and one deacon in plain garb, stood around the little table.

The bride was attired in a silk dress of blue gray and garnet, and wore a veil of tulle which reached the floor. The veil was embroidered with white silk to the depth of a quarter of a yard from the bottom, and was fastened by a wreath of artificial orange blossoms. A spray of the same served as a brooch and others as earrings. She was petite and pretty, a brunette as a matter of course. The groom was a fine looking man of thirty-five or forty years. As they took their places each laid a gold ring upon the silver covered book, and each received a prettily adorned, lighted wax candle, about three feet in length, which they held throughout the ceremony. The service began with chanting by the priests, one reading, the others making responses. The words were uttered rapidly and were, in the main, unintelligible. Sometimes there was reading in an ordinary tone of voice. The first act of especial interest was the taking of the book from the table and presenting it to the couple, touching first the forehead and lips of the groom, then of the bride. This was done three times. Next came the putting on of the ring. The "best man," who is an intimate friend or relative, now stepped forward and, taking the rings, placed one on the little finger of the right hand of each, then changed them back and forth several times, finally leaving them

in their original position, Both parties wore gloves, which were not removed during the ceremony, and immediately afterward, the bride changed the ring from her fourth to her third finger, while the bridegroom transferred his to the other hand. The placing of the crowns upon their heads followed. This was first done by one of the priests. Then the best man took his place behind the bridal pair and moved the crown back and forth from one head to the other three times. The repetitions of these various forms are made in recognition of the Trinity. When the crowns were first placed upon their heads, the guests took up some of the *confetti* from the salver and pelted the bridal couple on the head and shoulders, sometimes hitting other people, and making the air quite lively for a minute.

The next ceremony was the taking of a glass of wine, from which one of the priests first drank. He then held it to the lips of the groom, who took three sips, as did afterward the bride. There was a small loaf of bread upon the table. A part of it is sometimes put into the wine, but this we did not observe. Such is their mode of partaking of the Sacrament. Lastly, one of the priests took the bride by the hand. Her other hand was held by the groom, and he was followed by the best man; and so, hand in hand, they passed around the table three times, being all the time pelted with *confetti* by the guests. After a few closing words, the newly married couple took their seats upon the sofa, the priests proceeded to disrobe and do up their garments, and the service was over. Some of the guests went to the married pair and presented their congratulations; one or two, only, kissed her. Next came in

two servants bearing salvers. On one of these were tumblers containing a chalky looking liquid, which was made of almonds boiled with sugar, and was cool and agreeable to the palate. The other salver bore little frosted cakes, *confetti*, and other kinds of candy, to which each one helped himself in proportion to his appetite. Strange to say the bridal pair were not the first to be served, as with us, but almost the last. We being strangers, were given little lace bags full of *confetti*, an honor not shared by the others. After presenting our congratulations we withdrew.

We attended a reception among persons of a different class of society, the genuine Albanian peasantry. On entering we were introduced to a sister-in-law, who acted as hostess, and were then presented to the bridal pair, who were seated in state upon the sofa. The bride, a young and lovely brunette, wore a garment made of heavy homespun cotton, with solid silk embroidery around the bottom—red, blue, green, and other colors—more than half a yard deep. Above was a little jacket of the same material, the sleeves of which were heavily embroidered with gold braid, and presented an appearance of great richness and elegance. Over this was a sleeveless garment somewhat longer, and slashed at the bottom, forming lapels. It was of heavy, white felt, trimmed with crimson silk braid. Upon the head of the bride was a little skull cap of bright yellow silk, and fastened to this with gold pins was a veil of straw-colored gauze about a yard in length, which had a gold fringe several inches deep around the bottom. Her hair hung down her back in two braids. Large silk cords were braided in with her hair, and

from each plait depended a heavy silk tassel. Upon her head was also a decoration of gold coins, which hung down upon her forehead, and similar, though larger, gold ornaments formed an elaborate necklace. Silver bracelets on her arms completed her toilet. Her husband was dressed in a corresponding Albanian garb. The most striking part of this attire is a white skirt, often measuring fifty yards in circumference, so full that it stands out as if from crinoline. This skirt does not reach to the knee, and it gives the wearer the appearance of a ballet girl. Below this skirt appears a cream white garment, and below the knee the limbs are sometimes encased with leggings of leather, broadcloth, or crocheted worsted. Low, pointed shoes or slippers covered his feet. Over his shoulders was a jacket of fine felt or broadcloth, with sleeves consisting of uppers only, undersleeves showing below. The jacket was also open in front, and showed a spotless shirt; and a little cap adorned his head. In a few moments a woman brought in a tray upon which were several glasses of water, with spoons, and a tumbler of jelly. The guest is expected to take a spoonful of jelly and a glass of water, eat the jelly and drink as much water as he choses; then place the spoon in the glass, and return it to the salver.

The sisters of the bride said that she would continue to wear the Albanian costume for a year or two; then she will subside into third rate European dress, abandoning the picturesqueness of her native garb.

This variety of costume gives a certain interest and charm to the streets of Athens. When we first went to Athens it was about the time of the enrollment of

soldiers for the proposed war, and the streets presented an unusually animated appearance. Besides the European garb three others were seen. One of these was a soldier's uniform, one the Albanian dress, and another, a peculiar costume, is always of dark blue; a closely fitting jacket and trousers, which are really a skirt gathered in closely below either knee, leaving the rest as a full bag. Long blue stockings and low shoes generally complete this outfit.

It is certain that some of the modern Greeks bear a strong resemblance to the ancient, and we cannot but feel gratified that the majority of archaeologists are now agreed that they rightly claim inheritance from the ancient Hellenes. In looks, in bearing, and in mental qualities they undoubtedly display many of the characteristics of their distinguished progenitors.

Within the last thirty years the advancement of the people and the development of the resources of the country have been so rapid that we may reasonably feel confident that the Greek nation will become an important factor in Eastern civilization.

XUM

BANTU NOTES AND VOCABULARIES.

BY

HELI CHATELAIN, LATE U. S. COMMERCIAL AGENT AT LOANDA, WEST AFRICA.

No. I.

The Language of the Bashi-lange and Ba-luba.

INTRODUCTORY NOTES.

Bibliography of Luba.—When Dr. Cust published his "Modern Languages of Africa" in 1883, it was thought that no specimens of the language spoken by the Bashi-lange and the Ba-luba had yet appeared in print. Dr. Max Büchner had collected one hundred words; but his vocabularies are still in manuscript. Dr. Pogge had jotted down a few words in his diaries, and they were published after his death by the African Association of Berlin, in their "Mittheilungen," but many of the words given as Luba were in reality Kioko. The vocabularies of Ki-rúa collected by Cameron and Stanley were not mentioned by Dr. Cust under the head of Luba, because the identity of Luba and Rúa was not yet surmised. In fact Dr. Cust placed Luba and Rúa (Ki-rúa)*in two different sub-branches. In1888, the joint work "Im Innern Afrika's," by Dr. L. Wolf, Wiss-

* Another list of Rúa words was published in the "Polyglotta Africana Orientalis" of J. T. Last, London, 1885 (S. P. C. K.).

mann, etc., contained a list of poorly transliterated Luba words and sentences, which Dr. C. G. Büttner utilized for an able grammatical note published in the April number, 1889, of the "Zeitschrift für Afrikanische Sprachen." The "Ethnographia e Historia tradicional dos Povos da Lunda" (Lisbon, 1890) of H. de Carvalho has a few words of Luba and of the dialect spoken by the Tucuruba (that is, the Tu-ruba), who are the western Bashi-lange, and pay tribute to the Muata Yamvo, or Muatiamvua, of Lunda (Runda). All the preceding specimens of the language consisted simply of lists of words. The first reliable account of Luba appeared in the "Notes on Chi-luba, as spoken in Garenganze," Bath, 1892, by Chas. Alb. Swan, a lay missionary who had lived several years in the southern part of the Luba field, and who traversed it in its whole length when he returned to England by way of the Lomami, Kassai and Kongo. This neat little work of 63 pages contains a grammatical sketch, English-Chi-luba and Chi-luba-English vocabularies, and six chapters of John's Gospel. It is to be hoped that time and means may be found to edit and publish the manuscripts left by Dr. R. W. Summers, who made the most thorough study of Luba, as spoken by the Bashi-lange around Luluaburg.

Place and Area of Luba.—African terminology suffers from a lamentable confusion in the understanding and use of the words—race, nation, state, language, tribe, dialect, king, chief, etc. Correct ideas and correct statements are impossible, so long as writer and reader are not agreed as to the limits of each term. The definitions adopted in these notes are best illustrated

by application to a European and an African case. If we take the state of Austria, called an empire, we find it to be composed of various racial stocks and nations, speaking different languages and dialects, and professing a variety of religions. The Austrian nation proper is racially of Teutonic or Germanic stock, and speaks the German language (literary) as well as a number of dialects, which are mutually intelligible. The Czechs of Bohemia on the north and the Croatians on the south are racially and linguistically of Slavonic stock, but they speak two different languages (literary) and a number of dialects of these languages. The Hungarians belong to a third racial stock and speak a language (literary) and dialects which are independent of both the Germanic and Slavonic linguistic stocks. In Africa, if we take the Lunda (Runda) state or empire, we find it composed of various nations, all of the Bantu stock of the negro race, but speaking each its own language (not yet literary) in a variety of dialects, and each nation sub-divided into tribes, sub-tribes, clans and minor sub-divisions; few nations having a king or head-chief, but each tribe being under a chief, each sub-tribe under a chieftain, and each clan under a headman. Thus the Lunda nation, whose head-chief is at the same time king or emperor of the whole state, occupies only a part of the Lunda State, and is composed of various tribes and sub-tribes having their own chiefs, and speaking their own dialects. The same is the case with the Kioko, and other minor nations which recognize the suzerainty of Muata Yamvo. They all speak their own languages in several dialects, have their own head and sub-chiefs and follow their own na-

tional and tribal customs, though parts of one empire.

Passing now to Luba, there is no Luba state or kingdom; but there is a Luba nation, composed of all the tribes speaking dialects of the Luba language. This language only exists in the general unity of the phonology, grammar and word-store of the dialects which are mutually intelligible. As soon as a written literature develops, the impossibility of printing books in every dialect compels the writers to confine themselves to one dialect, which forms the basis of the book language. The latter, by accessions from dialects, sister languages, and loan words or idioms from foreign literatures, necessarily departs more and more from the fundamental dialect, and this can only become the general language by sacrificing part of its individuality, if not its independent existence.

It is probable that the Christian missions at the two extreme wings of the Luba field, in Katanga and in Bashi-lange Land, will develop the two dialects of their respective districts, but when they shall meet in in the centre these first transitory forms will no doubt blend into a general literary medium of the whole nation.

The present knowledge of Luba is too scanty and superficial for an enumeration of the dialects composing it and a precise delimitation of their fields. All that a comparison of published and unpublished vocabularies, and the oral and written testimony of natives as well as travellers, have thus far concurred in establishing, is that, roughly speaking, *the vast triangle between* (1) *the confluence of the Kassai and Lulua*, (2) *Nyangwe*,

(3) *Katanga or Garenganze, is occupied by one great nation, speaking practically one language.* This triangle comprises Bashi-lange and Ba-luba Land, U-rúa and Katanga. It lies entirely within the Kongo State's sphere of influence. The two extreme portions, Bashi-lange Land and Katanga (Garenganze), have been subdued by the power of the State's arms and they are held by State garrisons; but the whole of Katanga and U-rúa, that is, the Lualaba basin as far as Nyangwe, has been conceded to the Belgian Katanga Company. There can be no doubt, however, that as soon as civilization shall have enlightened these millions of intelligent natives the national spirit will assert itself, and they will take care of themselves and their homeland without the "protection" of greedy foreigners.

Comparative grammar shows that in structure Lu-ganda is almost identical with Luba and that both must have the same origin; but it also shows that the word-store differs enough to warrant the formation of two separate literatures. Both Luba and Lu-ganda must be counted among the primitive forms of Bantu speech. As the Regga and Nywema vocabularies show these tongues to belong to one group with Luba and Lu-ganda, while the physical characteristics of all these tribes and nations seem to be the same, further investigations may demonstrate the existence, between the Victoria Nile, the Middle Kassai and Lake Bangweolo, of a remarkably pure, compact and powerful branch of the great Bantu stock. The language of the Ba-songe, though very closely allied to that of the Bashi-lange, appears to differ more than a mere dialect

while that of Kanyika (Kanyoka or Kanyuka) may prove to be simply a dialect of Luba.

HISTORY OF THE BASHI-LANGE.—According to Wissmann,* quoting native tradition, the Bashi-lange are the result of the mixture of aboriginal Ba-tua with Ba-luba intruders, who, like the founders of the Lunda state, came from Kasongo's kingdom in the Lualaba basin.† This invasion and mixture would account for the great variety in the physical appearance of the Bashi-lange, for their characteristic tattooing, and for the dispersion of the Ba-kete, who are now found to the south, north and north-east of the Bashi-lange. Kapuku, the Muluba, was the name of the invader.

When Pogge and Wissmann came in contact with the Bashi-lange, they found that Mukenge was the principal chief, but that Chingenge had recently made himself practically independent of him. Mukenge belonged to the clan of Kashia, Chingenge to that of Chidimba. The two predecessors of Mukenge, Kishimbi and Kasongo, had died away from home, on a friendly expedition to the Kioko tribe. Chingenge had succeeded

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* "Unter Deutscher Flagge quer durch Afrika," 1889, p. 96.

† Therefore from the east. The statement that they came from the west must be a misprint. We also think it improbable that the first inhabitants, with whom the Ba-luba intermarried to such an extent as to form a new mixed type, were the Ba-tua pygmies. It would seem more natural to suppose a blending with the Tu-kongo or the Ba-kete, who were agricultural Bantu like the Ba-luba. Nomadic hunters, like the Ba-tua, had room enough to move out of the way of a conquering Bantu tribe without being compelled to settle down and mingle with another race. The fact that the Bashi-lange are to this day wedged in between the Ba-teke indicates that these occupied their present site at the time of the invasion, and that they furnished the substratum for the formation of the Lange (Bashi-lange) type. The possibility of the admixture of some Ba-tua blood is not excluded.

to Kabasu-Babu, who is said to have been a great grandson of Chidimba.

Although Bashi-lange slaves had long before drifted to Angola, and the semi-civilized Mbaka people knew of the strangely carved (tattooed) people to the north of their Lunda neighbors, Europe was ignorant of that interesting tribe until Pogge and Wissmann, so to say, discovered them in 1881–82. Yet they were not the first white men to visit the country, for the famous Portuguese trader, Silva Porto, who preceded Livingstone on the Zambesi in Ba-rotse Land, had also forestalled them in Lubuku.

What distinguishes the Bashi-lange among all African tribes is their so-called Diamba-worship, which revolutionized the whole tribe and paved the way for the introduction of Christianity and civilization. The following account of how this institution came about, and how the ground was prepared for German and Belgian exploration is largely drawn from "O Lubuco" (Lisbon, 1889), by H. de Carvalho.

When Livingstone crossed the Kioko (Kiokwe or Chibokwe) territory in 1854, the Ma-kioko (or Machyoko) had not yet settled anywhere north of latitude 10° S. Armed with flint-locks, which they obtained from Benguella *via* Bihe (Oviye), they had become expert elephant-hunters, and followed the retreating elephants toward the north, down the Chikapa valley. As their wives and children accompany them on their expeditions, they easily change their habitat, and so a few years later they had reached the 9° S. lat. The establishment of the Portuguese traders Carneiro and Saturnino Machado at Mona Kimbundu, where

the Ma-kioko could readily exchange their ivory for fresh supplies, had probably a determining influence on this northward move.

As subjects of Muata Yamvo, the Ma-kioko did not care to extend their expeditions too near their rapacious suzerain; so they followed the Chikapa, on the western extremity of the Lunda State. It did not take them long to reach the confluence of the Chikapa and Kassai, where they found themselves in the territory of Mai Munene, chief of the Tu-ruba, cousins of the Bashi-lange who inhabit the right bank of the Kassai. Until the advent of the Ma-kioko, the Bashi-lange had lived so removed and isolated from West and East Coast influences that they had no guns nor any idea of the commercial value of ivory and india-rubber. The Kioko chief Kilunga (alias Mukanjanga), a customer of the Portuguese firm of Mona Kimbundu, sent messengers across the Kassai, and established friendly relations with Kishimbu,* the principal chief of the Bashi-lange. The introductory present sent by Kilunga contained a gun and a keg of powder, accompanied by a message announcing that with these things the elephant could be killed without having recourse to traps, as was the custom of the Bashi-lange. Astonished at the sight of the present, and at the accounts of what the gun could do, Kishimbu arranged for an interview with Kilunga, who met him on the right side of the Kassai. Not only did Kilunga show his new friend how to use the gun in hunting, he also taught him how to smoke diamba,† and

* Called Kishimbi by Wissmann.

† *Diamba, liamba or riamba* is the Cannabis sativa, a kind of hemp, which is smoked in the *mutopa*. The effect is similar to that of opium and hashish.

told him wonderful stories about the white men and their riches. On his second visit to Kishimbu, Kilunga was accompanied by two Mbaka men of Angola who were tailors by trade. Kilunga failing to reappear in 1871 and '72, the Bashi-lange began to feel keenly the want of the white man's manufactures.

About that time Kishimbu, under the effect of diamba, dreamt that he had gone to the white traders, seen all their wealth and made good bargains with them, and that they afterwards visited his country, to which they brought goods far surpassing anything his Kioko friends possessed. This suggestion of the dream was carried into effect.

With an ample supply of ivory and maidens, which were the two articles in greatest demand among the Ma-kioko, and leaving their bows and arrows at home so as to avoid all warlike appearance, Kishimbu set out with a large retinue in quest of the white man. He followed Kilunga's route along the Chikapa, and managed to pass Mai Munene. At Mona Kongolo's he met Kashabala* and Antonio Bezerra Lisboa, two native traders of Mbaka (Ambaca). Antonio Bezerra guided Kishimbu to Kilunga's camp at Lufi, and to Saturnino's house at Mona Kimbundu. Both Saturnino and Kishimbu were delighted with the bargains they made, and from that day dates the opening of Bashi-lange Land to European commerce. The fame of the new ivory and rubber field spread like wild-fire,

* Kaxibala (Kashibala) or Kaxabala is the Mbaka equivalent of the Portuguese name Gaspar. The regular name of this Kashabala is Manuel Silva da Costa. Joannes is another name by which he goes in the interior. Caxavalla is a Portuguese spelling of Kashabala.

and caravans of I-mbangala from Kasanji, of Mbaka traders supplied from Loanda, and of Bihe traders supplied from Benguella, soon followed in the footsteps of their Kioko competitors.

On his safe return, loaded with the white man's things, Kishimbu ascribed his good fortune to the inspiration of diamba-smoke. He advised all his people to adopt diamba smoking as a national custom, and to follow the inspirations received under its intoxicating influence as divine oracles. All those who were anxious to obtain the wonderful goods of the white men responded with eagerness, and constituted the new sect and political organization of Lu-buku, *i. e.*, Friendship.

In obedience to diamba oracles, the old customs were forsaken, and a new era of peace, material prosperity, and general happiness was proclaimed. The old weapons and fetish charms were thrown into the rivers as useless things; bloodshed, even that of animals, was discountenanced; the former diet and costume were transformed; all strangers declared to be friends, foreign articles eagerly bought up, and civilized ways imitated with great enthusiasm.

Probably the ablutions connected with the rites of the diamba cult were due to Mbaka accounts of the Christian baptism.

The new religion, if such it may be called, did not please the conservative portion of the Bashi-lange, and so the nation was split into two parties: the adherents of the diamba brotherhood, calling themselves Bena-diamba, and the adherents of the old order of things, called Chi-pelumba.

Kishimbu, as founder of the new order, took the title

of Mukenge and became paramount chief of the Benadiamba. He died in 1873, when on a visit to Kilunga. He was succeeded in the new office of Mukenge by his brother-in-law, who is the present ruler of the Bashilange and vassal of the Kongo State. This Mukenge II. allowed the traders to establish markets at Kabau, on the left bank of the Lulúa River, and at Kapuku on the Muansangoma, in 1876.

In 1875–76 Dr. Pogge, who intended to cross the continent, reached Mussumba, the residence of the Muata-Yamvo of Lunda, but was not allowed to penetrate further east. In 1877, Otto Schütt, also commissioned by the German African Association of Berlin, still bent on passing beyond Muata-Yamvo's capital, was induced by his Portuguese and native advisers to take a northeastern route. This would have taken him to Lubuku, the El-dorado of his native guides and porters; but meeting with some opposition at Mai Munene's, he, like his predecessors, returned to Malange without having attained his object.

He had barely left Mai Munene when Silva Porto, with an immense caravan of Biheans, arrived there, crossed over to Lubuku, where he found several Mbaka men settled at Mukenge's capital, and passed on to lat. 5° N., he being the first white man the Bashi-lange ever saw in their country.

In 1881 Dr. Pogge, accompanied by Lieut. Wissmann, reappeared in Malange, still resolved to realize his original plan of crossing the continent by way of the Lunda country. When he arrived at Mona Kimbundu, Saturnino Machado informed him of the unsettled state of affairs in Lunda, where the marauding

Ma-kioko were making trade unsafe, and persuaded him to explore Lubuku, where he would be well received, and from where he might reach Nyangwe, and thence the East Coast. The experienced Kashibala, Saturnino's interpreter, joined Pogge's expedition, which had already secured Germano, another civilized native of Malange. In October, 1881, Pogge and Wissmann made their ingress in Bashi-lange Land, led by Chingenge, whom they had met on the Kassai. Both chiefs, Mukenge and Chingenge, vied with each other in receiving the white men as semi-gods to whom nothing could be refused. A prophecy that the chiefs Kishimbi and Kabasu-Babu, who had died away from home, would one day return from the spirit-world and bring perfect happiness to their subjects and kinsmen, was declared to be verified in the advent of the two white men, Pogge being Kishimbi and Wissmann Kabasu-Babu. Of this belief of the natives the two explorers were not slow to take advantage.

Mukenge, with hundreds of his men, accompanied his white friends to Nyangwe on the Lualaba, where Tippo-Tip provided Wissmann with the means to reach Zanzibar in comfort. Pogge returned with Mukenge to the Lulúa and stayed with him until 1883, when his failing health compelled him to return to Loanda, where he died on March 17, 1884.

At Malange he had met Wissmann, who was on his way to the Bashi-lange at the head of the greatest expedition that ever appeared in that region, this time in the service of Leopold II.

Previous to Wissmann's arrival at Malange in January, 1884, Saturnino Machado and his partner, A.

Lopes de Carvalho, also called João da Catepa, had left Malange for Lubuku (November, 1883), with a caravan of 1200 porters and a host of petty Mbaka traders travelling "in their shadow" (native parlance). This expedition opened a new, direct route to Lubuku, passing Hadi and Ma-shinji Land and crossing the Lovua to the north of Kaungula. Saturnino finally settled at Kapuku on the Muansangoma (February, 1884).

In July, 1884, Wissmann's expedition started from Malange and arrived at Mukenge's in November. Having properly organized Luluaburg station for Leopold II., who had recognized its importance as a stragetic point, and having started his white associates in their several departments of work, Wissmann, again accompanied by Mukenge and numbers of his people, accomplished his memorable descent of the Kassai, thus proving its navigability down to the confluence with the Kongo.

Meanwhile the African Congress of Berlin had constituted the Kongo State, and in the delimitation of its boundaries had drawn a straight line through Mukenge's domain, the northern part of which was included in the sphere of the State.

In November, 1885, Mukenge re-entered his kingdom, having been brought back by Dr. L. Wolf and L. Bateman of the Kongo State gendarmerie, who established a new station at the confluence of the Luebo and Lulúa rivers, six days' journey from Luluaburg.

On October 17, 1886, an American missionary, Dr. W. R. Summers, the apostle of the Bashi-lange, arrived from Malange at Luluaburg, where he labored amid

great difficulties and hardships until relieved by death on May 24, 1888.

Luluaburg was revisited by Wissmann in 1886–87, on his second crossing of Africa.

Since then great changes have taken place. With his Zanzibar soldiers, armed Angolans and cannon, the representative of the Kongo State soon became the real king of the land, which was organized into a district and subjected to the many laws and regulations of the State. As might be expected, it did not take long for Mukenge and his people to incur the displeasure of the State. Mukenge's town of about 5000 inhabitants was destroyed, and his power broken.

By the last agreement between Portugal and the Kongo State all the Bashi-lange and Ba-luba with half of Lunda have been included in the State. A Catholic Belgian mission has been established at Luluaburg. An American Presbyterian (South) mission, led by S. Norwell Lapsley, has settled in the territory of the Bakete, on the outskirts of the Bashi-lange (1890)at Luebo.

This place is now an important trading station with French, Belgian and Portuguese firms.*

The era of peace and friendship introduced by the diamba cult has been followed by dissensions, bloodshed, slave raids, and native anarchy; and the debilitating properties of diamba have made havoc in the Bashi-lange's physical constitution.

With the complete establishment of a regular government and the inflow of missionaries order will no

*Additional information can be found in "Life of S. N. Lapsley" (Richmond, Va., 1893), "The Ascent of the Kassai" by L. Bateman, New York, 1889, and in the Belgian journals devoted to the Kongo State.

doubt soon be restored, and peace, prosperity and steady progress realize to some extent the prophetic visions of happiness which thrilled the early founders of the Lubuku brotherhood.

INFORMANTS.—1. WILLIAM RICHARD SUMMERS, M.D., was born in Guernsey, Channel Islands, April 28, 1855. He became a printer, then a conjuror and circus agent, wandering through the length and breadth of the United Kingdom. After his conversion, he came to America in 1879; labored as captain in the Salvation Army; studied in Pennington Seminary, N. J., and graduated with honors from the New York University Medical College (1884). Having given his life to missionary work in Africa, the reading of Pogge and Wissmann's reports induced him to choose the Bashi-lange as his first and principal field of labor, and he succeeded in winning Bishop W. Taylor of the Methodist Episcopal Church to his plan. In Oct., 1884, he sailed with the writer for Liverpool; visited Berlin, where the unpublished journals of Pogge and Wissmann were perused; and on Jan. 7, 1885, he embarked in Liverpool with Bishop Taylor and the writer for Africa. Landing in due time at Loanda, he proceeded to Malange, where he labored successfully as a self-supporting missionary for not quite one year. In 1886, he left Malange with an outfit largely furnished by a grateful native trader, and reached Luluaburg in October. There he built two houses for the missionaries whom he expected to join him soon; he studied the native languages, and did good service as a physician; but waited in vain for recruits and supplies. He died near Luluaburg on May 24, 1888, and was buried in his grounds at Chin-

yama. According to his express desire, his manuscripts passed into the writer's hands. His ethnologic collections and effects were taken by the State people.

II. MUSULU.—In the spring of 1890 I travelled from Loanda to St. Vincent, Cape Verde Islands, in the Portuguese steamship "Africa." Among my fellow passengers were about 150 so-called contract laborers, destined to the coffee and cocoa plantations of S. Thomé. Most of them had been embarked at Benguella and Novo Redondo ; a considerable number also at Loanda. Those embarked at Benguella were, as a rule, reduced to skeletons, having marched hundreds, and even thousands of miles over the commercial routes of interior Africa before reaching the seaboard. Those shipped from Novo Redondo did not look so starved nor so utterly despondent, for they had come fresh from their homes, within a few days' march of the coast, and they belonged to the sturdy Sele and Sumbe tribes. Among those shipped from Loanda, who came chiefly from Lubolo, the Kuangu valley, and the Lunda country, a youth tattooed all over with artistic designs, and having nobody to talk with, attracted my attention. It immediately occurred to me that he might be a Mushi-lange, and I addressed him with *Moyo !* and the other Kishi-lange words I could remember from the reading of Pogge's journal. The expression of surprise and pleasure which spread over his face verified the correctness of my diagnosis I called him to my side, and from him I collected the vocabulary which is now put in type. That I could fairly well understand his words, and he mine, although I was ignorant of his language, and he of all but a

few words of Ki-mbundu picked up on the road from Malange to Loanda, testifies to the unity of the Bantu tongues, and to the usefulness, in Africa, of vocabularies, however slim, of even the most distant dialects.

Musulu (river) was the young man's name; his father's, Cidibu; his mother's, Bayimbe. He was a subject of Mukenge Kalamba, and had seen Dr. Summers, whom he recognized from my description of him. He had come with a trading party of Bashi-lange to the land of Kasanji. Being unable to walk from a sore foot, his countrymen left him there in charge of Mbanza Kambolo ka Kitamba, a Ki-mbangala chieftain and trader, who is well known at Malange. This man-stealer sold his guest to a white trader of Malange (for about $15) who resold him to the agent of a S. Thomé plantation (for about $70). I had never seen a more gentlemanly native than Musulu, and his eloquent appeals to obtain justice for him moved me deeply. But it was in vain I tried then, and in 1891, when again passing through S. Thomé, to redeem him and restore him to liberty. He is only one among the thousands who work as semi-slaves in the houses or plantations of refined white men, without hope of regaining their liberty or ever revisiting their homes.

THE LANGUAGE OF THE BASHI-LANGE.

GRAMMATICAL SKETCH BY DR. W. R. SUMMERS.*

NAME AND AREA.—This tongue is by the natives called *Mwaku Bashi-lange*,† and is spoken by the people living between the rivers Kassai (or Nzadi) and the Lubi; and whose territories extend irregularly northward to between latitude 5° and latitude 4° S., and southward as far as latitude 7° S. It is also spoken by the Bambwe tribe east of the Lubilash. Dialectical variations are spoken by the Ba-kete, a divided tribe living both to the north and to the south of the Bashi-lange; also by the Ba-songe and the Ba-sange, who live from the Lubi east to the Lualaba, and include the Bena-Koto, Bena-Ki, Bena-Kalebwe, and Bena-Milebwe tribes; and finally by the Ba-luba,‡ an important nation living south of the Ba-songe and Ba sange, north of the A-runda (people of Lunda) or Runda, east of the Bashi-lange, west of the Wa-rúa (or Ba-rúa), and northwest of the A-rungu.

ALPHABET.—The alphabet of the *Mwaku Bashi-lange* consists of five vowels: *a*, *e*, *i*, *o*, *u* (with the two semi-vowels, *w* and *y*), and sixteen consonants, *b*, *c*, *d*, *f*, *g*, *h*, *j*, *k*, *l*, *m*, *n*, *p*, *s*, *t*, *v*, *z*. There are two semi-diphthongs, *ai* and *oi*. The vowels are pronounced as in Italian; and, with the exception of the letter *c*, the consonants are pronounced as in English. *C* always as *ch* in "church," and *g* as in "go"; *sh* as in "shame"; *ñ* as first *ng* in "singing," and is generally followed by a syllabic vowel: *ng* differs from *ñ* in the *g*

* Arranged by Heli Chatelain.

† In a private letter Dr. Summers once stated that the Bashi-lange had no special name for their language. Mwaku Bashi-lange seems too long or awkward for practical use in linguistic books, and needs confirmation. The form Kishi-lange, which I use, is formed by the analogy of Kishi-kongo, as a parallel of Bashi-lange and Eshi-kongo. The final name is yet to be found. Dr. Summers wrote Bashilange or Ba-shilange; but Wissmann states that Bashi-, as also Bena-, signifies "inhabitants, people of," and I think he is right. Bashi- is thus the equivalent of akua- (in Ki-mbundu and Lunda), ashi- (in Ki-mbundu), eshi- (in Kongo). The name Ka-shilange, plural Tu-shilange, given to the Bashi-lange by the Angolans, is formed by the prefix of Class X., ka-, plural tu-. Wissmann says it strictly belongs to the wild Bashi-lange living west of the Kassai, who are the Tu-ruba of the Lunda empire.

‡ Dr. Summers understands here only the northern Ba-luba. He was not aware that the Ba-rúa were the central Ba-luba, and that in Katanga was to be found a southern branch of Ba-luba. Rúa, Ruba, Lúa and Luba are interchangeable pronunciations of the same word.

sound passing over to the following vowel; *ny* is the Portuguese *nh*, French *gn*, and when followed by *i* and forming the last syllable of a word is generally half-suppressed; and if preceded by *a* is often entirely suppressed.

ACCENT.—The accentuation of words is peculiar, being, excepting in names of men, generally on the first syllable.*

ARTICLE.—There is no article, the nouns being, with few exceptions, generic.

CLASSES OF NOUNS.—Nouns are divided into ten classes, each class being distinguished by a noun-prefix in the singular. The plural is generally formed by an entire change of prefix. One class has the same form in singular and plural, and another has no plural form. The form of all dependent words agrees with or depends upon the noun-prefix.

The signification of the different classes is somewhat obscure, though clearer than in many related languages.

Class I. Singular *mu-*, plural *ba-*, is the class of human beings. *Mu-ntu*=person, *ba-ntu*=people. *Mu-lume*=man, *ba-lume*=men. *Mu-kaji*=woman, *ba-kaji*=women.

Class II. Singular *mu-*, plural *mi-*, or *nyi-*, is the class of the vegetable kingdom, *mu-ci*=tree, *mi-ci*=trees, but it also includes many things of more than ordinary importance, as *mw-edu*=beard, *my-edu*=beards. *Mw-ito*=forest, *ny-ito*=forests. *Mu-twe*=head, *mi-twe*=heads.

Class III. Singular *ci-*, plural *bi-*, is the class of things in general and most things formed by man. *Ci-ntu*=thing, *bi-ntu*=things.

Class IV. Singular *di-*, plural *ma-*, is the class of very important things. *Di-cu*=ear, *ma-cu*=ears. *Di-fu*=stomach, *ma-fu*=stomachs. *Di-no*=tooth, *me-no*=teeth.

Class V. Singular *bu-*, plural *ma-*, is the class of nouns incapable of number, of which solids are generally in the singular form and liquids in the plural. Nearly all abstract nouns belong to this class. *Bu-nana*=friendship, *bu-lelela*=truth, *bu lulu*=bitterness, *bw-anda*=cotton, *bu twe*=ashes, *bu kula*=flour; *ma-i*=water, *ma-nyi*=oil, *ma shi*=blood, *ma-sha*=wrath. Instruments of locomotion: *bw-anda*

* This would be novel in a Bantu tongue. Probably the first syllable of the stem is meant, in which case the accent would follow the same law as in the Kongo cluster, differing therein from the Ki-mbundu and U-mbundu clusters, which prefer or require the accent on the penult, irrespective of stem.

=tipoia (riding-hammock), *m-anda*=tipoias, *bw-ato*=canoe, *m-ato*=canoes. Relationship: *bw-ana*=brother or sister, *m-ana*=brothers or sisters. Nouns like *bu-tuko*=night, *ma-tuko*=nights.

Class VI. Singular *lu-*, plural *n-*, is the class of things more or less round, bent or empty. Also of some abstract names of bad things. *Lu-kano*=armlet or anklet, *kano*=armlets or anklets. *Lu-ala*=claw, *ng-ala*=claws. *Lu-fu*=death. The *n* of the plural undergoes a number of changes according to the first letter of the stem.

Class VII. Singular *pa-*, plural *n-*,* is the class of words in which "place" is the prominent idea. *Pa-mbalo*=place, *mbalo*=places. *Pa-mbelo*=doorway, *mbelo*=doorways.

Class VIII. Singular *ku-*, no plural as yet found, is the class of infinitives used as substantives, some abstracts from verbs, and a few locative nouns. *Ku-fwa*=dying, or when used with a personal possessive pronoun, death. *Ku-lombe*=beggary. *Ku-mutwe*=source. *Ku-shiñu*=shirt or coat collar.†

Class IX. Singular and plural *n-*,* is the class of the animal kingdom. In the plural the first vowel is lengthened. *N-yama*=animal, *n-yaama*=animals.

Class X.‡ Singular *ka-*, plural *tu-*, is the class of small unimportant things and a few very large things. Diminutiveness, depreciation, etc., is expressed by prefixing a noun from any other class with *ka-* singular, or *tu-* plural, instead of the usual class prefix. When depreciation is intended of something already in this class, *kana* is placed before the noun. *Ka-fumbila*=cap, *tu-fumbila*=caps; *kana ka-fumbila*=a little cap, *tuna tu-fumbila*=little caps. *Ka-pusu*=pimple, from *ci-pusu*=boil. *Ci-lulu*=cloth, *ka-lulu*=small piece of cloth, or poor cloth.

Adjectives.—Adjectives follow the nouns modified, and agree with them by prefixing adjectival prefixes to the adjectival stems.

* Before labials, *b*, *p*, *m*, *v*, *f*, the letter *n* is generally replaced in writing by *m*. This is done to facilitate the reading to foreigners. In reality, if pronounced correctly, and not only approximately, both *m-* and *n-*, when preceding a consonant, represent the same sound, which is the nasal, so important in Bantu phonology.

† Ku-mutwe and ku-xiñu are probably not nouns, but locutions composed of the preposition ku=at, and the nouns mutwe=head, and xiñu=neck.

‡ Summers, following other Bantu grammarians, called the class with prefixes *ka-* and *tu-* Class IX. In my own grammatical sketches, and in this, I place it last, because one must know the prefixes of all other classes before he can form a correct diminutive.

A few adjectives serve also as adverbs, but never take prefixes. The adjectival *force* is often given to the preposition—*a* (of) followed by a noun or a verbal infinitive.

NOUN AND ADJECTIVE PREFIXES:—

Class.	N. prefix.	Adj. prefix.	Noun.	Adjective.		Genitive *a.*
I.	$_s$*Mu-*	*Mu-*	*Mu-ntu*	*mu-kole,*	a strong person.	*wa*
	$_p$*Ba-*	*Ba-*	*Ba-ntu*	*ba-kole,*	strong people.	*ba*
II.	$_s$*Mu-*	*Mu-*	*Mu-ci*	*mu-kole,*	a strong tree.	*wa*
	$_p$*Mi-**	*Mi-**	*Mi-ci*	*mi-kole,*	strong trees.	*ya*
III.	$_s$*Ci-*	*Ci-*	*Ci-ntu*	*ci-kole,*	a strong thing.	*cya*
	$_p$*Bi-*	*Bi-*	*Bi-ntu*	*bi-kole,*	strong things.	*bya*
IV.	$_s$*Di-*	*Di-*	*Di-fu*	*di-kole,*	a strong stomach.	*dya*
	$_p$*Ma-*	*Ma-*	*Ma-fu*	*ma-kole,*	strong stomachs.	*a*
V.	$_s$*Bu-*	*Bu-*	*Bu-tuko*	*bu-fika,*	a dark night.	*bwa*
	$_p$*Ma-*	*Ma-*	*Ma-tuko*	*ma-fika,*	dark nights.	*a*
VI.	$_s$*Lu-*	*Lu-*	*Lu-pasa*	*lu-kole,*	a strong cup.	*lwa*
	$_p$*N-*	*Nyi-**	*N-pasa*	*nyi-kole.*	strong cups.	*ya*
VII.	$_s$*Pa-*	*Pa-*	*Pa-mbalo*	*pa-nene,*	a large place.	*pa*
	$_p$*N-*	*Ny **	*M-balo*	*nyi-nene,*	large places.	*ya*
VIII.	$_s$*Ku-*	*Ku-*	*Ku-dia*	*ku-impe,*	good eating.	*kwa*
IX.	$_s$*N-*	*Mu-*	*N-yama*	*mu-kole,*	a strong animal.	*wa*
	$_p$*N-*	*Nyi-**	*N-yaama*	*nyi-kole,*	strong animals.	*ya*
X.	$_s$*Ka-*	*Ka-*	*Ka-sulu*	*ka-kole,*	a strong rivulet.	*ka*
	$_p$*Tu-*	*Tu-*	*Tu-sulu*	*tu-kole.*	strong rivulets.	*twa*

NUMERALS.

	Absolute Form: Counting on Fingers.	Concording Form: Counting of Things.
one	*y-omwe*	*-umu.*
two	*i-bidi*	*-bidi.*
three	*i-satu*	*-satu.*
four	*i-nai*	*-nai.*
five	*i-tanu*	*-tanu.*
six	*i-sambombo*	*-sambombo.*
seven	*mw-anda mu-tekete*	*mw-anda mu-tekete.*
eight	*mw-anda mu-kulu*	*mw-anda mu-kulu.*
nine	*ci-tema*	*ci-tema.*
ten	*di-kumi*	*di-kumi.*
hundred	*lu-kam ı*	*lu-kama.*
thousand	*ka-nunu*	*ka-nunu.*

* *Mi-* and *Nyi-* are interchangeable, but are oftenest found as above.

CONCORDING FORM.—From 1 to 6 the numeral stem is made to agree with its noun which precedes it, by taking its prefix: *Bi-asa bi-bidi*=two houses.

From 6 on, the numerals are nouns and they govern their nouns by means of the genitive.

POSSESSIVES.—Personal possessives are:—

Singular:	*-anyi*	my	*-ebi*	thy	*-andi*	his or her
Plural:	*-etu*	our	*-enu*	your	*-abo*	their

Personal possessives agree with the nouns they modify by taking the concord. The following is a list of these concords exemplified:

Class		Noun	My	Thy	His, her	Our	Your	Their
I.	S.	*Mu-ntu*	*w-anyi*	*w-ebi*	*w-andi*	*w-etu*	*w-enu*	*w-abo*
	P.	*Ba-ntu*	*b-anyi*	*b-ebi*	*b-andi*	*b-etu*	*b-enu*	*b-abo*
II.	S.	*Mu-ci*	*w-anyi*	*w-ebi*	*w-andi*	*w-etu*	*w-enu*	*w-abo*
	P.	*Mi-ci*	*y-anyi*	*y-ebi*	*y-andi*	*y-etu*	*y-enu*	*y abo*
III.	S.	*Ci-ntu*	*cy-anyi*	*cy-ebi*	*cy-andi*	*cy-etu*	*cy-enu*	*cy-abo*
	P.	*Bi-ntu*	*by-anyi*	*by-ebi*	*by-andi*	*by-etu*	*by-enu*	*by-abo*
IV.	S.	*Di-fu*	*dy-anyi*	*dy-ebi*	*dy-andi*	*dy-etu*	*dy enu*	*dy-abo*
	P.	*Ma-fu*	*anyi*	*ebi*	*andi*	*etu*	*enu*	*abo*
V.	S.	*Bu-tuko*	*bw-anyi*	*bw-ebi*	*bw-andi*	*bw-etu*	*bw-enu*	*bw-abo*
	P.	*Ma-tuko*	*anyi*	*ebi*	*andi*	*etu*	*enu*	*abo*
VI.	S.	*Lu-pasa*	*lw-anyi*	*lw-ebi*	*lw-andi*	*lw-etu*	*lw-enu*	*lw-abo*
	P.	*N-pasa*	*y-anyi*	*y-ebi*	*y-andi*	*y-etu*	*y-enu*	*y-abo*
VII.	S.	*Pa-mbalo*	*p-anyi*	*p-ebi*	*p-andi*	*p-etu*	*p-enu*	*p-abo*
	P.	*M-balo*	*y-anyi*	*y-ebi*	*y-andi*	*y-etu*	*y-enu*	*y-abo*
VIII.	S.	*Ku-dia*	*kw-anyi*	*kw-ebi*	*kw-andi*	*kw-etu*	*kw-enu*	*kw-abo*
IX.	S.	*N-yama*	*w-anyi*	*w-ebi*	*w-andi*	*w-etu*	*w enu*	*w-abo*
	P.	*N-yaama*	*y-anyi*	*y-ebi*	*y-andi*	*y-etu*	*y-enu*	*y-abo*
X.	S.	*Ka-sulu*	*k-anyi*	*k-ebi*	*k-andi*	*k-etu*	*k-enu*	*k-abo*
	P.	*Tu-sulu*	*tw-anyi*	*tw-ebi*	*tw-andi*	*tw-etu*	*tw-enu*	*tw-abo*

PERSONAL PRONOUNS.—The personal pronouns are:—

Singular:	*Meme*	I	*Wewe*	thou	*Yeye*	he or she
Plural:	*Toto**	we	*Nono**	you	*Bobo*	they

These pronouns are seldom used except when emphasis is desired, their places being taken by pronominal prefixes, which are always used, and are as follows:

M- or *in-*	I	*U-*	thou	*U-*	he, or she
Tu-	we	*Nu-*	you	*Ba-*	they

* The forms *twetwe* (we) and *nwenwe* (you) are also used.

In-di mu-cibale=I am blind; but *meme in-di mu-cibale*=I (myself) am blind.

ADVERBS.—Adverbs are often made from adjectives, but sometimes by the preposition—*a* (of) (genitive) followed by a noun or an infinitive. *Bimpe* is a general intensitive.

VERBS.—Verbs have *ku-* as sign of the infinitive, and always end in *-a: ku-tuma*=to send, *ku-lala*=to sleep. The verb stem is also the second person singular of the imperative: *tuma*=send, or, send thou.

The verb "to be" is sometimes included in the simple verb form, and sometimes represented by the particle *di*, as *In-di nsama*=I am sick, *u-di nsama*=he is sick.

The verb "to have" is formed of the particle *di* with the particle *na*, e.g., *In-di-na*=I have (literally, I am with).

Monosyllabic verbs are often irregular.

Derived forms of the verb are common, some verbs having six distinct forms.

In the present tense *di* is preceded by the pronominal or noun prefix: *in-di*=I am. In the other tenses the temporal particle is inserted between *di* and the prefix: *im-ba-di*=I was. In this case the *n* is changed into *m* owing to the following *b*.

POSITIVE CONJUGATION OF KU-FUTA=TO PAY.

INDICATIVE.

Present.		*Present Imperfect.*	
meme nin-futa	I pay.	*indi ngu-futa*	I am paying.
wewe u-futa	thou payest.	*udi u-futa*	thou art paying.
yeye u-futa	he pays.	*udi u-futa*	he is paying.
toto tu-futa	we pay.	*tudi tu-futa*	we are paying.
nono nu-futa	you pay.	*nudi nu-futa*	you are paying.
bobo ba-futa	they pay.	*badi ba-futa*	they are paying.

Present Perfect.		*Past Perfect.*	
na-ku-futa	I paid.	*na-ka-futa,*	I had paid.
wa-ku-futa	thou didst pay.	*wa-ka-futa*	thou hadst paid.
wa-ku-futa	he paid.	*wa-ka-futa*	he had paid.
twa-ku-futa	we paid.	*twa-ka-futa*	we had paid.
nwa-ku-futa	you paid.	*nwa-ka-futa*	you had paid.
ba-ku-futa	they paid.	*ba-ka-futa*	they had paid.

Future.

ni-ngu-futa	I shall pay.
nu-futa	thou wilt pay.
na-futa	he will pay.
na-tu-futa	we shall pay.
na-nu-futa	you will pay.
na-ba futa	they will pay.

SUBJUNCTIVE.

The subjunctive is formed by changing final *-a* into *-e*.

NEGATIVE CONJUGATION OF KU–FUTA.

Present.

ce-na	*n-futa*	I do not pay.
kwe-na	*u-futa*	thou dost not pay.
ke-na	*u-futa*	he does not pay.
ka-twe-na	*tu-futa*	we do not pay.
ka-nwe na	*nu-futa*	you do not pay.
ka be-na	*ba-futa*	they do not pay.

Past.

cena	*mw-asa*	*ku futa*	I have not (yet) paid.
kwena	*mw-asa*	*ku futa*	thou hast not (yet) paid.
kena	*mw-asa*	*ku-futa*	he has not (yet) paid.
katwena	*b-asa*	*ku-futa*	we have not (yet) paid.
kanwena	*b-asa*	*ku-futa*	you have not (yet) paid.
kabena	*b-asa*	*ku-futa*	they have not (yet) paid.

Past Perfect.

ca-ka-di	*mu-fute**	I was not paying, or had not paid.
kwa-ka-di	*mu-fute*	thou wast not paying, or hadst not paid.
ka-ka-di	*mu fute*	he was not paying, or had not paid.
ka-twa-ka-di	*ba-fute**	we were not paying, or had not paid.
ka-nwa-ka-di	*ba-fute*	you were not paying, or had not paid.
ka-ba-ka di	*ba-fute*	they were not paying, or had not paid.

Future.

ci-ba	*ku-futa*	I shall not pay.
ku ba	*ku-futa*	thou wilt not pay.
ka-ba	*ku-futa*	he will not pay.
ka-tu-ba	*ku-futa*	we shall not pay.
ka-nu-ba	*ku-futa*	you will not pay.
ka-ba-ba	*ku-futa*	they will not pay.

* Literally, I was not (*cakadi*) a payer (*mufute*); we were not (*katwakadi*) payers (*bafute*).

IMPERATIVE.

futa	pay thou.	*futa-i*	pay ye.
ku-futa	do not pay.	*ka-ni-futa*	pay ye not.

IRREGULAR VERBS.

For euphony's sake verbs beginning with *l-* (in stem) change *l* into *d* in the first person singular of the present tense: *nindala* instead of *nin·lala*=I sleep, from *ku-lala*=to sleep.

The verb *ku-pa*=to give, and others beginning with *p-* or *b-*, change the *n-* of prefix first person singular into *m-*: thus *nimpe*=that I give, instead of *ninpe; indimpa*=I am giving, instead of *indinpa.*

VOCABULARY OF KISHI-LANGE.*

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
A			
abdomen	barriga	di-vumu	di-vumu
arm, hand	braço, mão	lu-kuaku	di-boko
arms, hands	braços, mãos	ma-ku	ma-boko
B			
back (the)	costas (as)	di-ma	nii-mà
badness, ugliness	maldade, fealdade	ku-iiba	ma-lu-membe
basket-dish	cestinho	ng-alu	ka-paia†
basket-dishes	cestinhos	ji-ng-alu	tu-paia†
to beat	bater	ku-beta	ku-kuma
beauty, goodness	belleza, bondade	mbote	ma-lengela
beard	barba	mu-ezu	mu-evu
bird	ave, passaro	n-jila	ka-niiniu
blood	sangue	ma-niinga	ma-niinga
boat, canoe	canôa	u-lungu, u-atu	bu-atu.
bone	osso	ki-fuba	ci-fufua
to break	quebrar, partir	ku-bukula	ku-cibula
breast, teat	peito, mamma	di-ele	di-bele
breasts, teats	peitos, mammas	m-ele	ma-bele
to bring (*lit.* to send hither)	trazer (*lit.* mandar aqui)	ku-beka	ku-tuma kunu
bull, cow	boi, vacca	ngombe	ñombe
buttock	nadega	di-taku	di-taku

* Collected by Heli Chatelain on steamer between Loanda and S. Thomé. The alphabet used here is that of Chatelain, not that of Summers, hence *x*=*sh*, *i-*=*y*, *u-*=*w*.

† The *p* and the *k* in these and other words were pronounced by Musulu as they are in English, that is, with an audible *h* following the *p* or *k*; not as in the Romanic languages. The pure *p* and *k* of these languages are those heard in Ki-mbundu.

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
C			
to call	chamar	ku-ixana	ku-bikila
cassava-mush	infundi	funji	ci-ntu
calf of leg	barriga da perna	di-vumu dia kinama	mu-kolo
chain	cadeia, corrente	lu-bambu	lu-kanu
chains	correntes	ma-lu-bambu	ma-lu-kanu
chair	cadeira	ki-alu	n-guaza
chief, king	regulo	soba	mu-kelenge
child (little)	filho, filha (pequeno)	m-ona	mu-ana (mu-teketeke or mu-tekete)
cheek	face	di-tama	di-tama
chest, breast	peito	tulu	ki-adi, or ci-adi
cloth	panno	mu-lele	ci-lulu
cloud	nuvem	di-tuta	ci-xíu
come !	vem !	zá !	lua !
to come	vir	ku-iza	ku-luà*
coat (clothing of arms)	casaco (vestimenta de braços)	ka-zaku	ci-lulu ci-a ma-boko
to cook	cozinhar	ku-lamba, kuteleka	ku-teleka
corn, maize	milho	ma sa pl.	ma-suaña, pl.
to cry, weep	chorar	ku-dila	ku-dila
to cut	cortar	ku batula	ku-koza
D			
to drink	beber	ku-nua	ku-nua
drum, tom-tom	tambor, batuque	n-goma	n-goma
E			
ear	orelha	di-tue, di-tui	di cu
ears	orelhas	ma-tue	ma-cu
ear-wax	cera dos ouvidos	u-iji u-a di-tue	tu-iji tu-a mu di cu
to eat	comer	ku-dia	ku-dia
eye	olho	di-su	di-su
eye-lash	pestana	ki-zuezue	n-daviu
eye-brows	sobrancelhas	mi-kasu	ma-kiki
elephant	elephante	n-zamba	ka-pumbu
Europe (civilization)	Europa (civilisação)	Putu†	Mbutu†
to evacuate (faeces)	evacuar (excrem.)	ku-nena	ku-niinia

* The grave accent on a final vowel represents a half tone. The last vowel is then pronounced more distinctly than usual and with a rising inflection, but not with the full tonic accent, which precedes.

† The first meaning of *Putu* is Portugal, and by extension White Man's Land in general. The non-Portuguese whites are generally called *i-ngeleji* (sing. *ki-ngeleji*). The Kongo State, when distinguished from European governments, is called *Bula-matadi*, which was Stanley's name among the Kongo people. His name was extended to the State introduced by him.

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
F			
finger	dedo	mu-lembu	i-nù
fire	fogo	tu-bia	ka-pia
fish	peixe	m-biji	ci-kele
fly	mosca	hamue	ci-ñu
G			
get out!	saia d' aqui!	tunda!	tundubula!
to give	dar	ku-bana, ku-ba	ku-pa
girdle	cinto	ponda	mu-kaba
God	Deus	Nzambi	M-fidi Mu-kulu
goat	cabra	hombo	m-buixi
grass	capim	i-angu	mu-angu
gun	espingarda	u ta	ci-ñoma
gums	gengivas	mu-funiafunia	mu-kuna or mu-kunakuna
H			
hat (*lit.* clothing of head)	chapeo (vestuario da cabeça)	xapé	ci-vulu ci-a mutue
hair, a	cabello, um	n-demba	n-ionii
half, middle	metade, meio	ka-xaxi, kaci	ka-lánganii
hand, see arm			
heart	coração	pumbulu	pimbi
to hear (*See* to smell)	ouvir (*veja* cheirar)	ku-ívua	ku-úvua
hen, chicken	gallinha	sanji	sôlô*
to be high, long	ser alto, comprido	ku-leba	ku-lunda
hippopotamus	hippopotamo	n-guvu	ñ-uvu
hole	burraco	di-kungu	di-kungu
house	casa	i-nzo	n-zubu
hunger	fome	n-zala	n-zala
I			
instep	peito do pé	di-kunda dia ki-nama	di-kasa dia ki-lama
insteps	peitos dos pés	ma-kunda ma i-nama	ma-kasa a bi-lama
in, at, on	em, a, de	mu, bu, ku	mu, pa, ku
K			
knee	joelho	ki-puna	ci-nu
knees	joelhos	i-puna	bi-nu
knife	faca	poko	kele
L			
to laugh	rir	ku-elela	ku-zeka
to let go	deixar	ku-eha	ku-lekela

* The letter *ô* represents here a deep, close, and long *o*, sounding like English *u* in "full," but not short. This *ô* is not found in Ki-mbundu, in which the *o* is always open.

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
L			
leg, foot	perna, pé	ki-nama	ki-lama
lip	beiço	mu-zumbu	mu-lomo
lips	beiços	mi-zumbu	mi-lomo
liver	fígado	mu-cima	mu-cima
M			
man, male	homem	di-iala	mu-lume
men	homens	m-ala	ba-lume
manioc, cassava	mandioca	ki-dingu	ci-ombe
meat, flesh	carne	xitu	mu-iniinii
mouth	bocca	di-kanu	di-kanua
moon, month	lua, mez	m-beji	koci
much, many	muito, muitos	-avulu	-ingi
N			
to name, call	chamar, dar nome	ku-luka, ku-ixana	ku-bikila
nail (of brass)	tacha (d'arame)	fuma	fuma
nail (finger)	unha	ki-ala	ci-ala
nails	unhas	i-ala	bi-ala
navel	umbigo	ngombo	mu-tutu
navels	umbigos	ji-ngombo	mi-tutu
neck	pescoço	xingu	xiñu
no	não	ka-na	na-xi
nose (back of)	nariz (exterior)	di-zulu	di-lù
nostril	venta	di-zulu, di-zunu	di-zulu
nostrils	ventas	ma-zulu, ma-zunu	ma-zulu
O			
only, in vain, unjustly	só, debalde, sem rasão	ngó, ngoho	tupu
P			
paddle	pá (de canôa)	hafi	mu-bambu
to paddle	padejar, remar	ku-vudia	ku-kuba
parasol	parasol	xapediniu	di-kumbi
parrot	papagaio	ka-pakaiu, ka-koso	ka-kusu
pipe	cachimbo	pexi	mô-zua
pig, hog	porco	n-gulu	n-gulubè
to pinch (*lit.* to scratch nail)	beliscar (coçar unha)	ku-ta ki-njoto	ku-ania ci-ala
plate	prato	di-longa	ci-enga
to push	empurrar	ku-pula	ku-tongojola
R			
to remove	tirar	ku-katula	ku-anata
ring (*See* chain)	anel (*veja* cadeia)	lu-bambu, selu	lu-kanu
rope	corda	mu-kolo	mu-kudi

XUM

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
S			
sky, heaven	céu	di-lu, di-ulu	di-lù
skin	pelle	ki-konda, ki-ba	mu-bidi
to scratch	coçar	ku-aza	ku-ania
to seize, hold	pegar	ku-kuata	ku-kuata
to sit	sentar-se	ku-xikama	ku-xikama
to sleep	dormir	ku-zeka	ku-lala
sheep	carneiro	m-budi	mu-koko
shade	sombra	ki-lembeketa	di-ngidi
shoulder	hombro	ki-suxi	ci-kepakepa
to be small	ser pequeno	ku-tola	ku-teketa,or,teketeke
smoke	fumo	di-xi	mu-ixi
to snuff	tomar rapé	ku-fenia	ku-buita
sole of foot	planta do pé	di-kanda	ki-azà
to speak	fallar	ku-zuela	ku-zôla
spoon	colher (rama)	n-gutu	ci-tabu
star	estrella	tetembua	i-tutu
sun	sol	di-kumbi	di-bà
to swim, bathe	nadar, banhar	ku-zoua, ku-oua	ku-ouela
T			
thirst	séde	di-niota	niota
tattooing	tatoagem	m-bumba	saló
"	"	"	ki-or ci-mbumba
thigh	coxa	ki-takataka	ci-belu
this one	este, esta	iú	nii-uu
tongue	lingua	di-mi	di-mi
tobacco	tabacco	ma-kania (pl.)	ma-kaia, (pl.)
tooth	dente	di-zu, di-ju	di-zua
teeth	dentes	ma-zu, ma-ju	ma-zua
to tread on	pizar	ku-diota	ku-zeba
tree	arvore	mu-xi, mu-ci	mu-ci
trowsers (*lit.* clothing of legs)	calças (vestuario das pernas)	ji-kalasá	ci-lulu ci-a bi-lama
U			
to urinate	urinar	ku-susa	ku-zukunia
V			
vein, sinew	veia, nervo	mu-xiba	n-jía
W			
water	agua	me-nia	ma-ii
to walk	andar	ku-enda	ku-enda
waist	cinta do corpo	ki-nionga	m-buiniingu
to wash	lavar	ku-sukula	ku-ovua
(in water)	(na agua)	ku-zoua (mu menia)	(mu maii)
to wear, to dress	vestir, vestir-se	ku-zuata	ku-luata
woman	mulher	mu-hatu, mu-kaji	mu-kaxi

ENGLISH	PORTUGUESE	KI-MBUNDU	KISHI-LANGE
Y			
yes	sim	eue, kiene	ñhñ! or mhm!

MISCELLANEOUS.

Tui' enu, let us go!—yámos!

Pututú! Pututú! Pututú! imitation of the tomtom's sound.—Imitação do som do tambor.

Xi Xi beckoning at the same time with the hand, palm downwards, and moving all the fingers together. This is for calling one whose name is not known. The movement with the hand means "come."

Moio, tói is the greeting; *moio* meaning life.

Ua-bidia=he refuses.

U-di-ku=he is there, or here; signifying also "he exists."

Ba ngi niana tupu!=They have kidnapped me unjustly! This was the refrain of poor Musulu's conversation!

(*To be continued.*)

GEOGRAPHICAL NOTES.

BY

GEO. C. HURLBUT, *Librarian.*

THE SIXTH INTERNATIONAL GEOGRAPHICAL CONGRESS.—The following notice has been received :

PATRON: HER MAJESTY THE QUEEN.

VICE-PATRON: H.R.H. THE PRINCE OF WALES, K.G., K.T., K.P., G.C.B., ETC., ETC.

IT has now been definitely arranged that the Sixth International Geographical Congress will be held in London early in August, 1895, the precise date to be announced later.

The Organizing Committee cordially invite all who take an interest in any of the various aspects of Geography to attend the Congress, and to assist in making it a scientific success.

As the Congress is INTERNATIONAL it is proper that the subjects submitted for consideration should be of wide importance and of permanent interest. The Organizing Committee, assisted by specialists, are now arranging a programme of subjects suited for discussion, and are in communication with geographers of several nationalities. The attendance at the meetings of those most able to discuss the subjects which may be introduced is invited, and may confidently be expected.

Communications intended for the Congress may be made in French, German, Italian, or English.

At present it is only considered necessary to announce the general heads under which the various subjects to be dealt with at the Congress will be grouped. They are as follows:—

I. Mathematical Geography, including Geodesy.

II. Physical Geography, including Oceanography, Climatology, and Geographical Distribution.

III. Cartography and Topography.

IV. Exploration.

V. Descriptive Geography. Orthography of Place-names.

VI. The History of Geography.

VII. Applied Geography—with special reference to History, Commerce, Colonization, etc.

VIII. Education.

At a later period it will be decided to what extent, if at all, the Congress will be divided into groups or sections for the purposes of holding meetings. But in any case business will be so arranged that as far as possible all the subjects for discussion and consideration will be brought before all the Members of the Congress. When necessary, Committees will be appointed to deal with special subjects.

The Organizing Committee reserves to itself the privilege of determining the order and nature of the proceedings on each day.

Geographical problems connected with Colonization will probably be dealt with in some detail at the Congress, and therefore those interested in or connected with the Colonies of all European countries, are specially invited to attend.

The subscription payable by Members is £1, or 25 francs. On payment of 10*s.* or 12.50 francs, the wives and daughters of Members can obtain all the privileges of membership, except the right to receive copies of any publications which may be distributed to Members.

A circular giving full details as to arrangements, subdivision of subjects, Exhibition, etc., will be issued next year.

It is requested that the contents of the present circular may be made as widely known as possible.

All communications should be addressed to the Secretary, International Geographical Congress, 1 Savile Row, London, W.

J. SCOTT KELTIE,
HUGH ROBERT MILL, } *Secretaries.*

LEONARD DARWIN,
Chairman of Committee.

1 SAVILE ROW, LONDON, W.,
November, 1893.

A FAMOUS CENTENARY.—The Municipality of Oporto proposes to celebrate on the 4th of March, 1894, the fifth centenary of the birth of Prince Henry the Navigator, whose name calls up the heroic story of Portuguese maritime adventure and achievement.

The man was worthy of the epoch and the nation, and the coming celebration interests the civilized world. Its significance is well set forth by Mr. Major, the biographer of Prince Henry, in these words:

"When we see the small population of a narrow strip of the Spanish Peninsula, limited both in means and men, become, in an incredibly short space of time, a mighty maritime nation, not only conquering the islands and Western Coasts of Africa and rounding its Southern Cape, but creating empires and

founding capital cities at a distance of two thousand leagues from their own homesteads, we are tempted to suppose that such results must have been brought about by some freak of fortune, some happy stroke of luck. Not so: they were the effects of the patience, wisdom, intellectual labor, and example of one man, backed by the pluck of a race of sailors who, when we consider the means at their disposal, have been unsurpassed as adventurers in any country or in any age."

STANDARDS OF LENGTH AND MASS.—It is formally announced, in Bulletin No. 26 of the U. S. Coast and Geodetic Survey, that the International Prototype Metre and Kilogramme will in the future be regarded by the Office of Weights and Measures as fundamental standards, and that the customary units, the pound and the yard, will be derived therefrom in accordance with the Act of July 28, 1866. This Act establishes the following equations:

1 yard = $\frac{3600}{3937}$ metre.

1 pound avoirdupois = $2.20\frac{1}{46}$ kilogramme.

The International Standards were prepared by the Bureau organized under resolution of the Metric Convention of 1875, in which seventeen governments were represented.

Copies of the International Prototypes were distributed by lot in 1889, and the United States received Metres Nos. 21 and 27, and Kilogrammes Nos. 4 and 20. The metres and kilogrammes are made of the same material, an alloy of platinum, with ten per cent. of iridium.

The seals, which had been placed on Metre No. 27 and Kilogramme No. 20 at the International Bureau of Weights and Measures near Paris, were broken January 2, 1890, in the Cabinet room of the Executive Mansion by the President of the United States, in the

presence of the Secretaries of State and of the Treasury and a number of invited guests. This was the formal adoption of the National Prototype Metre and Kilogramme.

The announcement now made was approved by the Secretary of the Treasury, April 5, 1893.

THE NEW PACIFIC CABLE.—The work of laying the cable between Gomen, on the west coast of New Caledonia, and Bundaberg, on Hervey Bay, Queensland, was finished early in October. This is regarded as the first section of a cable which is ultimately to unite Australia with Canada and Europe by successive stages, from New Caledonia to Fiji, from Fiji to Samoa, from Samoa to the Fanning Islands, from the Fanning Islands to Honolulu and from Honolulu to Victoria, Vancouver Island.

A WONDERFUL CARPET.—The South Kensington Museum acquired last summer a carpet, which formerly adorned a tomb in the great mosque of the old capital city of Ardebil, in northwestern Persia. This work of art measures 34 feet 6 inches in length and 17 feet 6 inches in breadth. The knots (tied by hand) number 380 to the square inch, and for the whole carpet 33,037,200. The design consists of a central medallion in pale yellow, surrounded by cartouches of various colors, disposed on a dark-blue ground, covered with floral tracery. In each corner is the section of a large medallion like that of the centre; and each section is surrounded by cartouches. The border is composed of alternate long and circular panels, with a lobed outline

on a brown ground, covered with flowers. A panel at the upper end bears the inscription :

"I have no refuge in the world other than thy threshold, my head has no protection other than this porchway. The work of the slave of the Holy Place, Maksud of Kashan, in the year 942" (A.D. 1535).

THE NATIONAL MIND IN GEOGRAPHICAL NAMES.*—In this little work, which is a reprint of articles contributed to *Ausland* for 1893, Dr. Egli, the author of Nomina Geographica, lays down the proposition that the bestowal of geographical names, considered as a manifestation of the genius of a people or a time, reflects the degree as well as the direction of culture in the different peoples. This leads to the following deductions :

1. Among primitive peoples the prevailing names will be those of natural objects; among civilized men those relating to civilization;

2. The simplest nature-names, consisting of the bare appellative, are products of the infancy of a people;

3. A retrogression in the civilization of a people postulates a retrogression in the intrinsic worth of its new name-creations;

4. The character of the body of geographical names corresponds to the spiritual endowments of a people;

5. The prevailing civilizing influences in a people—the social, the political, the ecclesiastical, etc.—seek expression in the names of places.

These general principles are illustrated in a lively way and with abundant learning, by examples from the records of ancient and modern geography.

* Der Völkergeist in den Geographischen Namen. Von Dr. J. J. Egli, Professor in Zürich. 8°. Leipzig, Friedrich Brandstetter, 1894.

The percentage of culture-names bestowed by discoverers is very high, as appears from the following list of sixteen celebrated navigators (other than English): Kotzebue, 89.7 per cent.; Krusenstern, 86.7; Columbus, 64.4; Magellan, 76.7; Maurelle, 52.2; Mendaña, 69.2; Sarmiento, 65.2; Baudin, 91.6; Bougainville, 56.2; d'Entrecasteaux, 69.0; La Pérouse, 90.3; Barentz, 55.6; Le Maire, 72.0; Tasman, 92.3; Haast, 91.7; and Kane, 94.8. For eighteen English navigators Dr. Egli finds, on the whole, a higher percentage of culture-names: Dampier, 68.2 per cent.; Wallis, 59.4; Cook, 61.9; Shortland, 85.7; Flinders, 57.7; King, 80.3; John Ross, 95.9; Parry, 94.0; Franklin, 90.0; Beechey, 93.9; Fitzroy, 72.6; Mitchell, 85.2; Back, 90.0; Grey, 85.7; James Ross, 96.1; Stokes, 56.6; McClure, 95.5, and Belcher, 77.8.

A comparative table of names taken from various peoples and tribes shows in several instances a surprisingly high proportion of nature-names:

	Whole No.	No. of Nature-Names.
Eskimo	43	39
Dravidian	58	40
Malay	98	81
Polynesian	111	92
Rhaeto-Romanic	122	101
Mongolian	127	102
Negro	135	106
Phoenician	153	77
Samoied	163	152
Chinese	171	130
Persian	174	68

	Whole No.	No. of Nature-Names.
Bhota	177	137
Italian	270	151
Hebrew	321	223
Indian (Am.)	324	229
Roman	401	110

The national characteristics of the discoverers and colonists mark the nomenclature of the New World.

The Spaniards and the Portuguese sought their names in the Church Calendar, and the Netherlanders looked for theirs in the associations of their struggle with Spain; while the political history of France explains many of the French names in America and in the South Sea. The English were fond of proper names and names with a direct bearing on the position or the relation; and Dr. Egli cites, as a typical instance of the difference between them and the Spaniards in this matter, the names given to the four pointed islands at the western end of Magellan Strait. These islands, he says, were called by Sarmiento (1580) *The Four Evangelists*, by Hawkins (1594) the *Sugar Loaves*,* and by *Narborough* (1670) *Islands of Direction*, "because they formed a capital leading mark for the Strait of Magellan."

* This is an error. Hawkins says only: "From Cape Desire, some foure leagues north-west, lye foure ilands, which are very small, and the middlemost of them is of the fashion of a sugar-loafe."—*The Observations of Sir Richard Hawkins, etc., p.* 141. *Reprint, Hakluyt Society, London,* 1847.

Dr. Egli's authority is the German translation of the president De Brosses' *Histoire des Navigations aux Terres Australes*, 2 Tomes, Paris, 1756. In the original French the statement reads (Tome 1, p. 247): "A quatre lieues au nord-ouest de ce cap on voit quatre petites isles en pains de sucre: Four leagues to the northwest of this cape are seen four little islands shaped like sugar-loaves."

Nothing is said in the text about naming the islands.

The difference exists, no doubt, but the name *Islands of Direction*, which does not explain itself, is no improvement on Sarmiento's *Evangelists;* and this has, in fact, been adopted by the English.

In the chapter on *The Canadians and Yankees* Dr. Egli notes the American patriotic spirit which has expressed itself in so many repetitions of the names of presidents and other public men, more or less distinguished; but he is mistaken when he ascribes to the influence of culture the violent transfer of such names as Babylon, Rome, Egypt and Syracuse to the map of the United States. This abuse, traceable in many instances to a single person, is due to the lack of culture and to poverty of imagination.

THE SUN'S ATMOSPHERE.—On the 25th of October last M. Janssen read before the Institute a paper on his observations made at the Mont Blanc Observatory, Sept. 14 and 15, on the absence of oxygen from the atmosphere of the sun:

"We already knew," he said, "that the radiating surface of the sun was protected from contact with the icy celestial space by several gaseous envelopes. Of these the uppermost is the so-called Corona which produces, in total eclipses, the splendid phenomena of the glories and the crown. This uppermost envelope is mainly composed of hydrogen, the lightest and most transparent of gases. This transparent and protecting atmosphere insures the chief function of radiation, and we now see that by an equally admirable arrangement oxygen, the substance which might jeopardize this function, has been carefully excluded."

THE OPEN ARCTIC SEA, AND 84° N. LATITUDE.—According to the Portland *Oregonian* Capt. A. H. McGregor, of the Pacific Whaling Company's steamer *Orca*, reports that nine of the Company's vessels passed the season of 1892 near Cape Bathurst, "*the farthest point north and east ever reached by a vessel of*

any kind," entering the Arctic through Bering Strait. Captain McGregor adds:

"We could have made the trip from the Pacific to the Atlantic last year if we had so desired, but our business was whaling, not exploring. We found what is called the breeding-ground of the whales, which lies between Cape Bathurst and the Mackenzie River. We left four vessels, the *Norwalk*, *Balaena*, *Grampus*, and *Newport*, to winter there while the others finished the season on the Siberian coast. Those that wintered in the Arctic have been whaling all summer, but we have had no report from them and do not know if the ocean is open again this year. Natives at the cape whom I questioned told me that the ocean was fairly open three years out of four, and that there was a great big sea one year in five. Last year was what they termed 'great big sea,' and they said that the same conditions prevailed in 1889. A large vessel could not pass through a fairly open sea, so the chances of reaching Greenland through the Arctic Sea are one in five. From this I am inclined to the belief that Collinson entered the ocean when it was 'open.'"

The statement as to the open condition of the Arctic in 1892 is worthy of record, but the assertion as to Cape Bathurst is very far from the truth.

Even more remarkable than Capt. McGregor's story is that telegraphed, October 3, from San Francisco. According to this telegram the steam whaler *Newport* spent the past winter near Herschell Island, and worked her way in the summer of 1893 as far as N. Lat. 84°, the highest point ever reached, and it was believed that the Pole might have been reached by a party, had the vessel been supplied with dogs and sledges. All these particulars were invented by the conscientious reporter. What the captain of the *Newport* really said is told in the following extract from a letter, written by Prof. Geo. Davidson, of the U. S. Coast and Geodetic Survey, on the 31st of October:

"The Captain has been in to see me and has given me some graphic descriptions of his actual experience in those waters. . . . But he reached only 73°, and is dreadfully annoyed that the newspaper reporter made such an erroneous statement when he had the truth before him. At 73° the Captain saw no ice blink to the northward and therefore he thinks there was clear water for probably forty or fifty miles."

LOST IN BAFFIN'S BAY.—J. A. Björling and S. Kalstinius, two young Swedish naturalists, left St. John's, N. F., with three companions in the schooner *Ripple*, in the summer of 1892, to make natural history collections in north-western Greenland and in Ellesmere Land.

They were scantily provided with means, and their vessel was known to be unfit for the dangerous voyage before them; but they went as if on a holiday excursion, and reached Godhavn in safety.

There they were kindly treated and supplied with provisions; and on the 2d of August they set sail again. Nothing had since been heard of them, till on the 17th of June, 1893, Captain Mackay, of the Scotch whaler *Aurora*, found in a cairn on Carey Island, in Baffin's Bay, the following records, which appeared in the London *Times* of November 18:

The first of the documents, both of which were written by Mr. J. A. Björling, is as follows:

"Visited South-East Carey Island August 16, 1892. I left Godhavn on the 2d of the month and sailed along the ice in Baffin Bay until the 13th, when I, in one day only, sailed across Melville Bay to Cape York. An easterly hurricane near that place drove me to the west, and at noon I was near Cape Parry, from which point I sailed over to Carey Islands in order to supply myself with some provisions from the English depôt. On August 17, after having taken on board the provisions from the Nares depôt, my schooner *Ripple* went ashore on the south side of this island, where you will find us in a small tent. A new report will be left here before we leave the island. (Dated) August 17, 1892.

"Postscript.—Having lost the ship I am obliged to winter in these regions. I leave this island on the 26th of August for Toulke Fjord. If I should be compelled to go from there to another place further notice will be deposited in the cairn at Pandora Harbour. With the provisions from the Nares depôt here, I hope to have food enough for myself and my four companions until June, 1893."

The second note runs thus:—

"To visitors to South-East Carey Island in 1893.—As you can see by my notices here, I tried, after the loss of my vessel, to reach Toulke Fjord in order to winter there, but after reaching Northumberland Island I was compelled from several causes to give up this voyage and return to Carey Island. I was detained

on this island by bad weather for a longer time than I anticipated. I start now for the Eskimos at Clarence Head on Cape Faraday in Ellesmere Land. As I hope that a whaler will visit Carey Island next summer in order to rescue me and my party I will attempt to reach that island before the 1st of July. Should none be there by the 15th of July, I must, if possible, go to the Danish settlements. Therefore, if you should visit this island later than July 1 and should find no notice from me concerning my voyage to the Danish settlements, I should be very much obliged to you if you would go to Clarence Head (50 miles from this) where I shall leave in a cairn on the most easterly point a notice concerning the fate of myself and my party during the winter. Finally, I beg you to send all notices from me to Professor Baron A. E. Nordenskjold, Stockholm, Sweden, or to the nearest Swedish Consul, with a statement of the time and place where they were found. If I cannot reach the Eskimos our provisions will not last longer than to the 1st of January, failing supplies from any depôt. Party now consists of five men, of whom one is dying.

"S. E. Carey Island, 12th October, 1892,
"J. A. BJÖRLING, Swedish Naturalist."

A PROPOSED ANTARCTIC EXPEDITION.—Dr. F. A. Cook, who was the ethnologist of the Peary North-Greenland Expedition in 1891–92, has been engaged for some months in preparations for an Antarctic Exploring Expedition in the autumn of 1894.

The start will be made from New York about the 1st of September, in a steam whaling vessel, provisioned for three years, and provided with two life-boats, one large enough to cross the sea between the South Shetland Island and South America. The course will be to the Falkland Islands, where supplies will be taken in, and thence directly to Louis Philippe Land, where one of the life-boats and a store of provisions will be left.

Advantage will be taken of the first opening in the ice barrier to press as far to the south as possible, and then to begin systematic scientific observations.

The travelling equipment will be made and perfected during the long Antarctic night, and as soon as the sun returns work in the field will be begun. The in-

land party will start for the south, and those who remain on the coast will continue their observations until the company reassembles, which will be about the 1st of March.

It is supposed that the Falkland Islands will be reached, on the return, about the 1st of May, 1895. Dr. Cook says :

"I do not expect to prolong the Southern sledge journey more than three months. On this journey the glacial phenomena, snow and ice formation, will be carefully studied. Many other important meteorological and geological observations may be made. A very novel investigation, and one to which I expect to devote a great deal of attention, is the Antarctic ice cap, which, perhaps, is nearly 3,000 miles in diameter, and probably nearly circular in form ; its thickness is a problematical matter, and has been a subject of much theorizing by scientific men."

This plan agrees in its general features with the one sketched by Dr. Jno. Murray, of the Challenger Expedition, in a paper on "The Renewal of Antarctic Exploration," read before the Royal Geographical Society, on the 27th of November.

Dr. Murray said that within the past few months he had been in communication with geographers and scientific men in many parts of the world, and that there was unanimity among them as to the necessity for South Polar exploration The work of an Antarctic expedition would be to determine the nature and extent of the Antarctic continent ; to penetrate into the interior ; to ascertain the depth and nature of the ice-cap ; to observe the character of the underlying rocks and their fossils ; to take magnetical and meteorological observations both at sea and on land ; to observe the temperature of the ocean at all depths and seasons of the year ; to take pendulum observations on land, and possibly also at great

depths in the ocean; to bore through the deposits on the floor of the ocean at certain points to ascertain the condition of the deeper layers; to sound, trawl, and dredge, and study the character and distribution of marine organism.

It was for the Royal Navy to undertake the task, with two ships of 1000 tons each, and the operations should extend over three summers and two winters. Early in the first season a wintering party of about ten men should be landed somewhere to the south of Cape Horn, probably about Bismarck Strait, at Graham Land. The expedition should then proceed to Victoria Land, where a second similar party should winter, probably in McMurdo Bay, near Mount Erebus. The ships should not be frozen in, but should return to the North, conducting observations of various kinds towards the outer margins of the ice. After the needful rest and outfit, the position of the ice and the temperature of the ocean should be observed in the early spring, and later the wintering parties should be communicated with, and, if necessary, reinforced with men and supplies for another winter. During the second winter the deep-sea observations should be continued to the north, and in the third season the wintering parties should be picked up, and the expedition return to England.

THE LIVERPOOL GEOGRAPHICAL SOCIETY.—The second winter session of this young Society was opened on the 10th of October with an address by Mr. Clements R. Markham, President of the Royal Geographical Society, on "The Exploration of the Polar Regions, including Arctic and Antarctic."

Mr. Markham affirmed the many uses, scientific and economic, of expeditions to the frozen North and South. He said that the hydrography of the Arctic seas had a most important bearing on the general question of oceanic winds and currents, as well as the temperature of the sea at various depths, and the prevailing winds with reference to currents. The climate of Europe depended in no small degree on the atmospheric conditions of the polar area, because the development of extremely low temperatures necessarily leads to corresponding extreme changes of pressure and other disturbances, the effects of which were felt far into the temperate zone. For the satisfactory appreciation of these phenomena a precise knowledge of the distribution of land and water within the Polar area was absolutely necessary.

Explorations in the Arctic had advanced the knowledge of magnetism and geology, of botany and zoology and every branch of biological science.

By work in the Antarctic regions light might be thrown on many interesting scientific speculations, such as those of Mr. Henry O. Forbes, derived from a study of the fossil birds of the Chatham Islands. He conceived the existence in tertiary times, of a vast Antarctica, clothed with vegetation, which connected New Zealand with South America and with Madagascar. Antarctic researches would test this and other explanations of puzzling biological facts which were still under discussion, either corroborating them, or perhaps explaining the phenomena which had given rise to them in other ways.

The greatest national value of these expeditions would

always be, however, that to which Lord Beaconsfield alluded, and which influenced his Government—"Polar expeditions encourage that spirit of enterprise which has ever distinguished the English people."

It was Lord Beaconsfield, also, who declared that the English were ruled by rhetoric, and not by logic. In the rapidity of this descent from the heights of science, it appears to have been forgotten that the English spirit of enterprise showed itself before Polar expeditions were heard of, and that some very enterprising nations have not turned their energies towards Arctic exploration.

THE LEWIS AND CLARK EXPEDITION.*—Full as the title of this book seems to be, it is marked by some omissions. Where brevity is no object the entire name, the "United States of America," should adorn the page; the expression *etc.*, while it leaves scope for the imagination, disappoints the reader, who looks for exact information; and no reference is made to the Dedication, which must have cost more than one anxious night.

* History of the Expedition under the Command of Lewis and Clark, To the Sources of the Missouri River, thence across the Rocky Mountains and down the Columbia River to the Pacific Ocean, performed during the years 1804-5-6, by Order of the Government of the United States. A New Edition, Faithfully Reprinted from the only Authorized Edition of 1814, with Copious Critical Commentary, prepared upon Examination of Unpublished Official Archives and Many other Sources of Information, including a Diligent Study of the Original Manuscript Journals and Field Notebooks of the Explorers, together with a New Biographical and Bibliographical Introduction, New Maps and other Illustrations and a Complete Index. By Elliott Coues, *Late Captain and Assistant Surgeon, United States Army, late Secretary and Naturalist, United States Geological Survey, Member of the National Academy of Sciences, etc.*

In Four Volumes. 8°. Francis P. Harper, New York, 1893.

The book itself, fortified by the editor's scientific and historical notes and properly indexed, will be welcomed by many who do not share Dr. Coues's enthusiasm with regard to what he calls "our national epic of exploration."

The text is substantially that of the Biddle edition, which, however, is not followed, as the preface declares, "punctiliously and with scrupulous fidelity"; for Dr. Coues immediately adds that he has touched the text here and there in a matter of grammar or punctuation, that he has interpolated one new chapter, and that he has changed the spelling of some proper names. It was, no doubt, quite right to do these things, but they are not consistent with scrupulous fidelity.

The notes add greatly to the value of the work, which may fairly be called the definitive *Lewis and Clark*, and Dr. Coues may be forgiven if he has not searched every corner of the country for possibly existing manuscripts relating to some of the men who went with the expedition. He has studied the original journals and notebooks, and the labor must have been severe, indeed, which wrung from him this humiliating confession:

"It was a daily draft upon a fund of omniscience which I am satisfied I never possessed." (Preface, p. vii.)

It is to be said, nevertheless, that with all his modesty Dr. Coues rarely shrinks from giving us the benefit of his opinion on matters not strictly scientific, as in the following passage:

". . . for Thomas Paine's soul flowed into Jefferson's, bearing a precious quality of spiritual reasonableness, which informed and filled the mind of the greatest statesman America ever produced. What we owe to Jefferson is history—what Jefferson owed to Paine is the very mystery of godlikeness. It is well to keep the reputed paternity of our country before the common people by the name of Washington, and uphold William Tell among the simple Swiss; but Washing-

ton's intellect shrinks out of sight before Jefferson's, and Jefferson's dwarfs in comparison with Paine's" (p. 467, note 17).

These are brave words; but how are the common people, mere Americans, to retain their simple belief in the Father of his Country, now that the fierce light of Coues's intellect has been turned upon him?

Other annotations, remarkable for knowledge of various subjects (grammar not included) and for good taste, occur on pp. 986–987 and 1192; and everywhere pearls are dropped by the way.

AROUND THE WORLD.*—The publishers of this new monthly magazine say, in their introduction:

"While not claiming originality of conception, having for precedents the admirable *Au Tour du Monde* and three or four German publications of an equally high order, the magazine may, with its initial number, justly assume its position as first of its kind for this country."

This position fairly belongs to the number, which is handsomely printed and illustrated, though it contains but 20 pages; and it must be added that there is originality in the change of name bestowed upon *Le Tour du Monde.*

There should be a field for this publication, recommended as it is by its appearance and by the low price of subscription ($1.50 a year), and edited by a writer, always eloquent in the cause of geography, though sometimes less than clear; as when, on p. 20, he speaks of Bonvalot as "the successful transgressor of Central Tibet," and identifies the Land of the Rising Sun with China.

* Around the World: an Illustrated Magazine of Tours, Travels and Explorations, devoted to a Knowledge of the Earth and of its Inhabitants. Edited by Prof. Angelo Heilprin. Vol. I., No. 1, December, 1893. The Contemporary Publishing Company, New York and Philadelphia.

CURRENTS OF THE GREAT LAKES.—The *Monthly Weather Review*, for September, 1893, gives the results of the efforts made in 1892 to obtain some idea of the currents of the Great Lakes. These results are shown in a chart, published in September.

Bottles, so weighted as to float just beneath the surface of the water, were dropped by navigators in the open water of the Lakes. Of these bottles 463 were picked up and returned.

The surface-drift is made irregular by the variations of the wind, but, in general, the eastward motion toward the Saint Mary's River is very decided in Lake Superior. In Lake Michigan there is a strong southward surface movement on the western shore, gradually turning eastward and becoming northeast or north on the eastern shore of the lake until finally it flows steadily towards the Strait of Mackinac. In Lake Huron the surface flow is to the south, deviating eastward in the eastern portion with a decided set into Georgian Bay and westward with equal force into Saginaw Bay; but in the extreme southern part of the lake the motion is towards the River St. Clair. In Lake Erie and Lake Ontario the surface water is driven by the wind to the east-northeast.

The returns relate to the season of navigation in 1892, and principally to the period from April to October, so that the surface-floats must have described their course within a few months.

A note by the Editor of the *Monthly Weather Review* quotes from the *Transactions of the Canadian Institute* the account of an investigation of the currents of Lake Ontario by the Provincial Board of Health and

the Toronto City Council, in the summer of 1891, in the part of the lake near Toronto. The investigation satisfactorily showed that the lake currents are caused by the wind and that they change direction as the wind changes.

THE CLIMATE OF THE CITY OF MEXICO.*—Don Mariano Bárcena, Superintendent of the Central Meteorological Observatory of Mexico, has published in pamphlet form a paper on the climate of Mexico, prepared by him for the Meteorological Congress of the United States in 1893.

Accompanying the pamphlet is a résumé in English, from which the following extracts are made :

The observations taken hourly in the shade cover the years 1877–1892 ; those in the open air began in 1882 and were taken every three hours ; the data of the temperature of the soil and the magnetical data are deduced from a period of three years.

The mean annual height of the barometer is 586 mm. .37 (23.086 in.), the maximum in 16 years 594.19, the minimum 579.80.

The mean annual temperature is 15°.4 Cent. (59°.72 Fahr.), the maximum in 16 years, in the shade, 31°.6 (88°.88 Fahr.), the maximum, in the open air, 49°.2 (120°.56 Fahr.) and the minimum, in 16 years, in the open air,——7°.2 Cent. (19°.4 Fahr.).

The annual number of rainy days is 139 and the mean annual rainfall 604 millimetres (about 23.70 in.). The cloudy days average 120 in the year and the clear

* El Clima de la Ciudad de México-Breve Reseña por Mariano Bárcena, Director del Observatorio Meteorológico Central. 8vo. México, 1893.

days 105. The prevailing direction of the clouds is Southwest, and the prevailing wind is Northwest.

The mean annual humidity is, in the shade, 61 ; in the open air, 62. The coldest month is January ; the hottest April. The greatest quantity of rain falls in August ; the least in January and February. March and April are the driest months.

In the 16 years 37 shocks of earthquake, nearly all slight, were registered ; the heaviest, on the 19th of July, 1882, lasted 40 seconds and was felt over half the area of the Republic.

Mr. Bárcena's English is everywhere intelligible, with the exception of the phrase *invaluable duration* for *inappreciable duration.*

THE CLIMATE OF RIO DE JANEIRO.—Mr. L. Cruls, Superintendent of the Observatory, Rio de Janeiro, has published the results of the meteorological observations recorded during the forty years 1851–1890, accompanied by plates showing the variations of temperature, the humidity, the atmospheric pressure, etc.

The conclusions reached by Mr. Cruls from his study of the data before him are :

Atmospheric disturbances are rare and the barometer falls not more than from 5 to 10 millimetres (.1875 to .375 inch) and this in the course of a few hours, and generally under the influence of a strong *pampeiro,* blowing from the southwest. The greatest velocity of the wind is 30 metres a second—67 miles an hour.

The maximum annual temperature varies between 35° and 37°.5 Centigrade (95° and 99°.5 Fahr.). The highest thermometer is at the beginning of February,

the lowest early in July, and the mean annual variation hardly exceeds 6° Cent. (10°.8 Fahr.). The daily variation is less than half this figure.

The oppressiveness of the heat in the summer is to be attributed to the great humidity of the atmosphere. The mean annual humidity amounts to more than 78 per cent., and the mean extremes show a variation of only 3 per cent.

The annual cloudiness of the sky (zero representing a cloudless heaven) amounts to 64 per cent, only 3 per cent. below that of Greenwich. There are 131 clear days in the year, a clear day being one with not more than one-half per cent. of cloud.

The annual rainfall is 1090 millimetres (42.84 inches), and there are 111 rainy days in the year. The precipitation is greatest in the months of March and December, and lightest in July. The heaviest rainfall for a single month was that of April, 1872, when there fell 455 millimetres (nearly 18 inches). In the forty years under review there were three months without a drop of rain : June, 1869, and August, 1879 and 1884. The greatest fall for any one year was 1556 millimetres (about 62 inches) in 1862, and the least was 732 millimetres (nearly 29 inches) in 1889.

There are 30 stormy days in the year; the extremes recorded being 11 in 1856 and 49 in 1862. The monthly average is 2.5. The stormiest month is January, with 6.3 days, and the least disturbed is the month of June with 0.3 day.

The Drought in England.—Mr. G. J. Symons, F.R.S., in a letter to the London *Times* of Oct. 7, re-

views the dry period which set in with March and closed with September of the year 1893.

In London the fall for the seven months was:

March.	April.	May.	June.	July.	Aug.	Sept.
.32	.24	.80	.73	2.46	1.61	1.07

The total for the seven months is 7.23 inches, and for the nine months, January–September, only 11.54 inches; the average yearly rainfall being 25 inches.

The most noticeable feature in the review is that there were four consecutive months, each with less than an inch of rain. Mr. Symons finds but one other instance of the kind in his record of observations for thirty-five years, and that is for the four months, Oct., 1879–Jan'y, 1880, which show: October, .80, November, .72, December, .86, and January, .31.

In the counties of Middlesex, Surrey, Kent, Sussex, Herts, Bucks, Oxford, Bedford, Essex, Norfolk, and Wiltshire, that is, in nearly all the southeast of England, the four months March–June, 1893, were as dry as in London.

THE MANCHESTER SHIP CANAL.—This canal, intended to connect Manchester with the sea, was authorized by Act of Parliament passed in 1885, but the work was not begun till November, 1887.

The length of the canal is 35½ miles, from Eastham on the Mersey to Old Trafford in Manchester; the minimum depth of water is 26 feet, the minimum width at the bottom 120 feet, and the average width at water level 170 feet. To overcome the fall of between 60 and 70 feet in the whole distance there are five sets of locks. The three locks at Eastham measure, respec-

tively, 600 feet by 80, 350 feet by 50 and 150 feet by 30. The other sets of locks measure 600 feet by 65 and 350 feet by 45. The time required for the passage through the canal will be ten hours.

The docks constructed between Manchester and Salford for the accommodation of shipping have an area of 114 acres, and the quays cover more than 170 acres.

The cost of this canal, which adds one to the great seaports of the world, was £15,000,000.

It is announced that pilotage will not be compulsory, but many of the Mersey sea pilots, as well as others, will take charge of ships, and a plan of the canal is being prepared for their use. Many of the Mersey tugs are licensed to tow vessels in the canal, and arrangements are being made for the provision of powerful lamps for navigation by night. Steam and hydraulic cranes will be at hand to secure despatch in discharging and loading, and experienced stevedores are being obtained from various ports. The attention of shipowners is directed to the fact that the fixed bridges over the canal are 75 feet above the ordinary water level; the height of the masts should not exceed 70 feet.

Currents in the Bay of Biscay.—Bulletin Nos. 14–15, 1893, of the Bordeaux Geographical-Commercial Society, contains a paper by M. A. Hautreux on the currents of the Bay of Biscay, carefully studied by him during the past summer.

Before entering upon his experiments M. Hautreux compared and analyzed the following documents:

1. The American Pilot-Charts, on which are indicated

the derelict vessels floating in the North Atlantic and the points at which they were encountered ;

2. The maps of the direction and probable intensity of the currents in the North Atlantic. These were drawn by Lieut. G. Simart and published by the French Ministry of Marine in 1889 ;

3. The chart published by Prince Albert of Monaco in 1892. This chart is based upon the experiments with floating bottles and kegs dropped by the yacht *l' Hirondelle* in her cruises in 1885, 1886, 1887, and 1888.

Four of the derelicts mentioned in the Pilot Charts, passed, without entering, the Bay of Biscay, drifting at the rate of 15 to 16 miles in 24 hours ; obeying, it is concluded, the impulse of a current which sets, between the meridian of the Azores and that of Finisterre (Spain), towards the opening of the Bay. Four other derelicts and two bottles entered the Bay, within which the current changes to a general S.S.E. direction ; and there appears to be between Cape Ortegal and the island of Ushant (Ouessant) a space of more than 100 miles in width, where the waters move in opposite directions and in eddies.

Lieut. Simart's map shows that the general movement of the waters is along the coast of France from the northwest to the southeast and then to the south ; the very reverse, that is to say, of what is known as Rennell's current.

The floats, thrown out from *l' Hirondelle*, found their way, not to the coasts of La Vendée and Brittany, but to the head of the Bay of Biscay ; and they gave no indication of a northward current along the coast.

M. Hautreux made his experiments with floats, composed of two bottles fastened together by a galvanized iron wire, 3 or 3½ metres * (9.94 to 11.48 feet) in length. One bottle was nearly filled with water so as to sink and to keep the other floating, bottom up, on the surface of the water. United in this way, the bottles were unaffected by the wind and were moved solely by the surface current. The length of 3 metres was adopted in order that when the apparatus reached the coast the lower bottle, grounding at high tide, would keep the whole in a position to be picked up at low water; and on the coast of the Landes the high tide is never less than 3½ metres.

Between May 26 and July 31, 40 of these floats were dropped and 21 were recovered. The points established seem to be:

1. Bodies floating in the Bay of Biscay are carried towards the coast of the Landes;

2. They drift less rapidly as they approach the land;

3. The direction of the drift curves towards the south, at a little distance from the coast;

4. The time at which they make the land is closely related to the time of spring tide.

EMIN PASHA'S DAUGHTER.—It appears that Emin Pasha's child Ferida is now in Berlin under the care of her aunt. The Rev. Horace Waller, of Twywell Rectory, Thrapston, writes to the London *Times*, of Oct. 3:

"When Emin arrived on the coast of Africa at the end of 1889, and with a view to his daughter's future, it was deemed advisable that she should go through the legal process of 'adoption' to make doubly sure, as no valid proofs could be forthcoming of her father's legal marriage to his Abyssinian wife in the wilds of

* *Nature* of Oct. 19 (p. 601) makes the floats consist of "two bottles attached by a cord *a metre* in length." It is in this way that knowledge is increased.

the Soudan. His wife was dead, and he himself had just arrived at the required age—50 years, so that there was no impediment.

"The legal process was carried out forthwith, and one is relieved to find that Ferida Schnitzler is not only in good hands, but provided for, and a dweller amongst those who are inclined to score some points in Emin's favor which are hardly granted here.

"The child is described as being nine years of age, very small, but unusually pretty; she seems also to be high spirited and intelligent. She has no knowledge of the sad fate of her father, and the recollection of her mother, who died when she was five years old, has passed away."

MOUNT SINAI.—Prof. A. H. Sayce, in the *Imperial and Asiatic Quarterly Review* for July, regrets to disturb the convictions of the travellers who have journeyed among the monotonous and inhospitable rocks of the so-called Sinaitic Peninsula, but declares nevertheless that Mount Sinai is not to be found in the Peninsula.

It stood, according to his reading of the Old Testament record, on the borders of Edom, if not actually within the limits of the Edomite Kingdom, and the Yâm Sûph from which the Israelites approached it was the Gulf of 'Aqâbah.

The Egyptian monuments show that, at the period of the Exodus, the western half of the Peninsula was more strongly garrisoned by Egyptian troops than the valley of the Nile itself, and that it would have been madness for fugitives from Egypt to enter the territory.

Mr. Sayce concludes that, while we may never know where Mt. Sinai actually was, we have to look for it on the borders of Midian and Edom, among the ranges of Mount Seir and in the neighborhood of Kadesh-barnea.

This conclusion will go far towards tranquillizing the disturbed convictions of the pilgrims.

YEMEN.—The British Vice-Consul at Hodeida, in his last report, gives a description of Yemen, the south-western province of Arabia.

It is bounded north by the Hejaz, northeast by the Arabian Desert, southeast by Hadramaut, south by the Gulf of Aden, and west by the Red Sea. The capital is Sana, and the most important towns are Feizan, Loheia, Zobeid, Mokha, and Hodeida. Loheia is a seaport of some importance, Mokha is now in ruins, and Hodeida is the capital of the sea-coast plain, or Tihama.

The decline of Mokha dates from the occupation of Aden by the British, in 1839, and the coffee trade has been transferred to Hodeida, which is a town of 50,000 inhabitants.

Yemen is very fertile; in most places there are two, and in some three, crops a year; and rain is abundant in June, July, and August. The chief products are coffee, lentils, wheat, grapes, and many other kinds of fruit. The population is estimated at 3,000,000, and the industries are agriculture, trade, and dyeing and weaving. The domestic animals are camels, asses, and sheep.

The Vice-Consul offers the following explanation of the Arab decline:

"The Arabs of the present day do not resemble the Arabs of the fifteenth and sixteenth centuries, when they were the only pioneers of civilization, and when they extended their conquests from Spain in the West to China in the East. Nowadays, on account of their intermarriages with slaves brought from Africa, the Arabs have morally and physically degenerated. Although I have seen some Arab captains using a rude kind of compass, I think the modern Arabs study neither navigation nor any other sciences."

The explanation is less clear than it might be, pos-

sibly because the Arab pioneers of civilization in the fifteenth and sixteenth centuries seem to have escaped the notice of historians.

There can be no doubt that Negro slaves are carried into Arabia at the present day, as they were in the fifteenth and sixteenth centuries, and long before that period, so that the supposed recent degeneracy of the Arabs can hardly be due to the admixture of Negro blood.

An extended study of the Arab race by the Vice-Consul would be a boon to civilization.

THE INDIAN CENSUS FOR 1891.—The Report of the Indian Census Commissioner for 1891 is reviewed in the London *Times* of October 10.

The total population was 289,187,316, of whom 287,223,431 came under the census operations; and of these 221,172,952 live in British India and 66,050,479 in the Feudatory States.

The area of India is 1,560,160 square miles, or about 3 per cent. of the land surface of the globe, while it contains about 20 per cent. of the world's population. The density for all India is 184 to the square mile; for British India alone (exclusive of Assam and Burma) 279. France has 186, Austria 191, Prussia 223, the German Empire 237, Italy 249, England and Wales 498 and Belgium 540 to the square mile; but England and Belgium are manufacturing, countries, while the Indian population is chiefly engaged in agriculture.

The rate of increase is 0.93 per cent. a year; below that of England and Wales (1.28 per cent.), Germany (1.07), Canada (1.07), Belgium (0.99), and above that

of Switzerland and Bavaria (0.64), Spain (0.55), Sweden (0.50), Italy (0.62) and France (0.06.)

The Commissioner of the Census, Mr. Jervoise Baines, reaches the following conclusions :

> We have every reason to assume that the present rate of increase among the people of India is well within their means of subsistence. If maintained, which of course it will not be, it would be 75 years before the population doubled itself, and the problem of their support would then, no doubt, be a hard one for our successors. . . . Summing up what has been said above as to the conditions that affect the growth of the population of India, it seems, first, that the number of children annually born into the country is a very high one, and that there is no prospect of its speedy or extensive decrease. Then, again, that the tendency of British administration is to prolong the normal life, and to protect it, as far as possible, against the abnormal attacks to which it is there liable. As regards provision against the contingencies to which the above conditions give rise, there is, first, the prospect of, for a time at least, increasing the yield of food-supply from the soil ; secondly, the resources for the purchase of food may be increased by the production of materials in demand abroad, or in home manufacture ; thirdly, the growth of the non-agricultural industries ; and, fourthly, the increase of the area of land under tillage, due to either the extension of irrigation or, still more, to the slow migration of the surrounding population, as pressure increases, to land as yet untouched by the plough.

The total number of persons not born in India, including the French and Portuguese possessions, was 661,637. Of these 478,656 were born in countries contiguous to India, 60,519 in remoter Asiatic countries (China included), 100,551 in the United Kingdom, 10,095 in Continental Europe, America and Australasia, and 11,816 in Africa, the islands, and at sea. Of the Europeans about 85,000 consist of the British troops and their families, 10,500 belong to the Civil service and 6,100 are employed on the railroads.

Classified according to religious belief, there are 207,731,727 Hindus, 1,907,833 Sikhs, 1,416,638 Jains, 7,131,361 Buddhists, 89,904 Parsis, 57,321,164 Mohammedans, 2,284,380 Christians, 17,194 Jews, and 9,323,-

229 not attached to any of the faiths named, and practising some form of ghost or fetish worship.

Of the whole population, 46 in a thousand can read and write, and, excluding Europeans and Eurasians, only 1.4 person in a thousand knows English.

Of the women between 15 and 40 years of age 84 per cent. are married, while the average in Europe is 40 per cent.

Nearly 26 per cent. of the children die in the first year, and the average duration of life, which in England is 44 years, is 24 years in India.

THE JAGANNÁTH FESTIVAL.—Puri, commonly known as Jagannáth, is the chief town of Puri District, Bengal. It is situated on the coast, in Lat. 19° 48′ 17″, and E. Long. 85° 51′ 39″, and it has a population of 22 or 23,000, nearly all Hindus.

The town has neither commerce nor manufactures, but derives its support from the pilgrims, who flock to the shrine of Jagannáth every year. The houses are built of wattle covered with clay, and raised on platforms of hardened mud, about 4 feet high, and, with the exception of the principal avenue which leads from the temple to the country-house of Jagannáth, the streets are mean and narrow. The enclosure of the temple is 652 feet long and 630 feet in breadth; and a stone wall 20 feet in height screens it from profane eyes.

Within the enclosure are 120 temples, the largest being the great pagoda dedicated to Jagannáth, which has a carved conical tower 192 feet high. The principal entrance is known as the Lion Gate, and before it stands a beautiful monolithic pillar which once adorned

the Temple of the Sun, 20 miles above Puri. There are four chambers in the temple; the Hall of Offerings; the Pillared Hall, for musicians and dancing girls; the Hall of Audience, and the Sanctuary, which contains images of the god, his brother Balabhadra and his sister Subhadrá. These images are carried upon cars from the temple to the country-house, through the adoring multitude. The distance is less than a mile, but the journey takes several days; and if deaths occur, they are accidental. Sir William Hunter, in the account from which these facts are taken, says that the whole spirit of the Vishnu-worship is opposed to self-immolation, and that accidental death within the temple renders the whole place unclean.

This being the year of reincarnation of the gods, the festival at Puri was one of peculiar solemnity. It was attended by a correspondent of the London *Times*, which printed his letter on the 30th of September. He says:

"Even in Calcutta the pilgrims were so numerous as to fill up the Chitpore and Strand roads at night, but 'the India General' and Macneill's ships took them to Cuttack, and there the fifty three-mile walk commenced. All along the (good) pucca road might be seen magnificent up-country men from Delhi, Bareilly, and elsewhere, and as handsome down-country Telugu women, but the vast mass of the people wereplain-looking and poor Bengalis and Uryas. There were few children. One could not help noticing that the majority of the pilgrims were women. The rains had set in and had swollen the wide river just outside Cuttack, but under the wall of the Commissioner's compound we found country boats which were poled across by means of five bamboos, and so stemmed the fierce current. . . . We got over in about twenty minutes, and after two days hard travel reached Puri. About eight miles away a pilgrim caught sight of the handsome dome, and passing on the khabar (news) to others, in a minute or two every one could be seen pressing forward with the bright light of religious enthusiasm in his eye. . . . Some missionary counted us as we streamed over the bridge into Puri, and said that by two o'clock in the afternoon of Saturday, the 15th of July, the day of the reincarnation, 132,000 pilgrims had passed into the town. We arrived on the Friday night, and I went round the lodging-houses with Dr. Banks, the civil surgeon. I

freely confess that I did not want to go, and never having been in a Hindu lodging-house (dharmaala) before, I imagined all sorts of filth. There used to be such even in Puri, but now the lodging-houses and private houses are as clean as European bungalows. We went into one with a beautiful covered courtyard, and there certainly were 400 pilgrims in the courtyard and in the cloisters instead of 110, the number written on the license, but the place had no odor or heat. Others were the same with twenty, seventy, sixty sleeping. I found every Government official, from the collector and the policeman downwards, on the *qui vive*, and slaving night and day to get the festival over quietly and without row or accident. . . . At 10 P.M. the Hindu manager ordered the great doors to be flung open, and the sacred umbrella of silk (with twelve white silken tassels hanging from the centre below round the handle) came down the steps inside the temple and halted just inside the door. Then the tomtoms and the gongs and the trumpet made music, and the lac of pilgrims shouted as Balabhadra came out into the square, and was escorted to his car by devotees, who flung him pice, annas, even rupees. . . . The three cars for the three gods had been stationed in the street the day before. They consisted of three wooden tiers, the topmost surmounted by a scarlet and black cloth canopy, and the whole mounted on twelve wheels. They looked very picturesque by day and quite massive in the torchlight."

At 11 o'clock there was another blare and Subhadrá came out to her car and half an hour later, the music sounded again and as soon as Jagannáth's silk umbrella and pith sun hat of cardinal red and gold appeared, the crowd shouted "Hari Jagannáth!"

It took a long time to carry the portly god to the space in front of his car and a still longer time to haul him up the plane, the real fact being that all this time offerings were pouring in to the priests. At a quarter to 1 A.M. the excitement was over and the throng dispersed.

Next morning (Sunday) the collector and policeman gave the order to haul Balabhadra along the street, and the three great ropes six inches thick were lined by willing men and women. Three hundred were at one rope, and then hundreds fanned the god 20 and 30 yards away, hoping that this work of supererogation would be put to their credit in the eternal bank.

On Monday, the 17th of July, both Subhadrá and Jagannáth were pulled half a mile along the Bara Dhan. Every one in the street wore a contented smile, because he knew that he had worked out his own salvation. . . . The poor Hindu had accomplished the dream of a lifetime; he had gazed on the face of Jagannáth; he had pulled his car; he had paid four pice (1*d.*) for a linoleum painting of the trinity, and this would interest his children for years to come. It would be an heirloom. . . . On Tuesday, the 18th, the three cars were dragged a considerable distance, but most of the pilgrims were already on the way to their homes and the priests were left to count up their gains.

THE FRENCH TREATY WITH SIAM.—The *Revue Française*, of October 15, publishes the text of the treaty signed at Bangkok, on the 1st of October, by the French and the Siamese plenipotentiaries.

By the 1st Article Siam renounces her claim to the territory on the left (eastern) bank of the Mekong, and to the islands in the river.

By the 2d Article Siam agrees neither to keep nor to navigate any armed boat or vessel on the Great Lake (Toulé-Sap), or the Mekong, or their tributaries in the provinces of Battambang and Sien-Reap; and the 3d Article binds the Siamese government not to construct any fortified post or military establishment in either of these provinces, or within a radius of 25 kilometres (15.53 miles) on the right bank of the Mekong. No armed force is to be maintained by Siam in the districts named in the 3d Article (Art. 4), and

the police service will be carried on as usual by the local authorities.

Until an agreement is made between the two governments with regard to the commercial regulation of the districts named in Article 3, no duties shall be therein levied; and the Siamese government agrees, by the 5th Article, to open negotiations for the said regulation within six months.

Article 6 reads: "As the development of the navigation of the Mekong may render necessary certain works on the right bank, or the establishment of relay stations for boats and depôts of wood and coal, the Siamese government binds itself to give, on the request of the French government, all the necessary facilities for this purpose."

By Article 7 French citizens, and those subject to French jurisdiction, shall be free to travel and carry on their business in the territories mentioned in Article 3, when provided with a pass from the French authorities; and reciprocity will be accorded to the inhabitants of the said territories.

By Article 8 the French government reserves the right to establish consulates where it shall think proper for the interest of French citizens, subjects or dependents, and particularly at Korat and at Muang-Nam. The Siamese government shall grant the sites necessary for the said consulates.

In case of difficulties arising, the French text shall be the sole authority (Article 9).

Article 10 provides that the treaty must be ratified within four months from the day of its signature.

The provisions of the treaty are, perhaps, more satis-

factory to France than to Siam; and it is easy to imagine that many things may be done hereafter in virtue of the significant 6th Article.

FATHER HUC AND HIS CRITICS.*—Prince Henri d' Orléans has reprinted in this little book articles contributed by him to the *Revue Française* and the *T'oung-pao* in defence of Father Huc's truthfulness in his *Travels in Tartary and Tibet.* When this book of travel was published, in 1851, it was received with a certain amount of incredulity, but the only serious attack made upon it was by Prjevalsky, who visited the same regions twenty years after Huc and Gabet's famous journey. The Russian traveller must be supposed to have meant what he said when he declared that Father Huc's account of the country, after leaving the Koko Nor, was entirely false. Prjevalsky's authority as a scientific explorer has so far prevailed with many geographers, notwithstanding the vindication of Huc by the English scholars Ney Elias, Col. Yule and others, that Prince Henri has been impelled to give his own testimony. In his travels in Tibet he found himself in districts for which Father Huc's volumes furnished the only available European source of information; and he was always surprised at the missionary's accuracy, the fidelity of his descriptions and his precision with respect to the smallest details.

Similar testimony is borne by Mr. Rockhill in his *Land of the Lamas*, pp. 125, 126. He says that Huc frequently embellishes,† but that he never invents, and

* Le Père Huc et Ses Critiques, Par Henri-Ph. d' Orléans. 8°. Calmann Lévy, Paris, 1893.

† Prince Henri, or his printer, translates the word *embellished*, in Mr. Rockhill's remarks, by *emballé* (packed).

that, altogether, his work cannot be too highly praised, and that if it had been properly edited, with explanatory notes, accusations like those made by Prjevalsky would have found no acceptance.

THE GREAT EARTHQUAKE OF JAPAN IN 1891.*—Twenty-eight of the photographs reproduced in this volume represent scenes of ruin caused by the convulsion of 1891, and it adds to the interest of the views to know that they are printed on paper, which is manufactured only in Echizen, in the earthquake district.

Japan is shaken every year by at least five hundred earthquakes, and in some years one or two thousand shocks are added to the average number.

Besides earthquakes, volcanic explosions threaten certain sections of the country. There are three lines of weakness through which the volcanic forces have made their way. The first—at least 1000 miles long—comes from Kamtchatka through the Kurile Islands and Yesso down to Nippon. Here it is met almost at right angles, by a second line about 1500 miles in length, coming from the Ladrone Islands through the Bonin group. The third line runs from the Philippines through Formosa to the centre of Kiushiu, where it terminates in Asosan, a volcano with a ring-formed crater ten miles in diameter.

The earthquakes are most frequent along the east coast of Japan. They do not come from the volcanoes

* The Great Earthquake of Japan, 1891. By John Milne, F.R.S., Professor of Mining and Geology, Imperial University of Japan, and W. K. Burton, C. E., Professor of Sanitary Engineering, Imperial University of Japan. With Plates by K. Ogawa. Lane, Crawford & Co., Yokohama, Japan. Long 4°.

and their frequency shows no relationship to the volcanic action.

The disaster of 1891 occurred on the 28th of October, in the centre of the empire, in the prefectures of Aichi and Gifu. The disturbance was very widely felt, but the destruction of buildings and engineering works was chiefly within an area of 4200 square miles. About 10,000 persons lost their lives, 15,000 were wounded, and 100,000 houses were levelled. The waves of motion were short and rapid, the ground was fissured, and small mud volcanoes were created.

In Tokyo, more than 200 miles from the centre of action, the ground moved in long, easy undulations, like those of a raft rising and falling on an ocean swell. The plates which give the liveliest idea of this great convulsion are No. X., which shows a line of railway twisted from side to side for a long distance, and No. XXVI., in which the Nagara Gawa Railway Bridge is broken up into sections, lying at various angles.

The Tunisian Geographical Society.—The *Revue Française*, of Nov. 1, notices the formation of the *Société de Géographie de Tunisie*, with the following officers: Hon. Pres't, M. Ch. Rouvier, French Resident; Pres't, Commandant Servonnet, naval attaché to the Residency; Vice-Pres'ts, MM. Auguste Pavy and Dr. Bertholon; Secretary, M. E. Benoît.

It is to be supposed, though it is not stated, that the Society is established at Tunis.

Egyptian Irrigation.—It was announced on the 31st of October that the Egyptian Under-Secretary of State for Public Works would proceed up the Nile

towards the end of November to prepare himself for giving a final opinion upon the five schemes for the construction of a great reservoir in Upper Egypt; and that the Government would ask the Powers to concur in the appointment of a Commission of European experts to visit Egypt early in 1894, in order to make a definite selection of the best scheme.

ENGLISH AND GERMAN WEST AFRICA.—The text of the Anglo-German Agreement, respecting the *hinterland* of the territories claimed by Great Britain and Germany back of their colonies on the Gulf of Guinea, has been published in England, as follows:

Article 1.—The agreement of 1886 having stipulated that the point where the boundary shall reach the river Benue shall be fixed to such a point to the east of, and close to, Yola, as may be found on examination to be practically suited for the demarcation of a boundary, that point shall be fixed as follows:—The boundary drawn from the point on the right bank of the Old Calabar or Cross River, about 9° 8′ longitude east of Greenwich, marked "Rapids" in the English Admiralty chart referred to in the agreement of 1885, shall follow a straight line directed towards the centre of the present town of Yola. From that centre a measuring line shall be drawn to a point on the left bank of the river Benue five kilomètres below the centre of the main mouth of the river Faro; from the latter point the circumference of a circle, the centre of which is that of the present town of Yola, and the radius of which is the aforesaid measuring line, shall be described, south of the Benue, continuing till it shall meet the straight line drawn from the Old Calabar or Cross River. The boundary deflecting from that straight line at this point of intersection shall follow the circumference of the circle till it shall arrive at the point where the circumference reaches the Benue. This point on the Benue shall henceforth be accepted as the point to the east of, and close to, Yola, mentioned in the agreement of 1886.

Article 2.—The boundary determined in the preceding Article shall be continued northward as follows:—A line shall be drawn from the point on the left bank of the river Benue fixed in that Article, which, crossing the river, shall go direct to the point where the 13th degree of longitude east of Greenwich is intersected by the 10th degree of north latitude. From that point it shall go direct to a point on the southern shore of Lake Tchad, situated 35′ east of the meridian of the centre of the town of Kuka, this being the distance between the meridian of Kuka and the 14th meridian east of Greenwich, measured on the map published in the German Colonial Atlas of 1892.

In the event of future surveys showing that a point so fixed assigns to the British sphere a less proportion of the southern shore of Lake Tchad than is shown in the aforesaid map, a new terminal point making good such deficiency, and as far as possible, in accordance with that at present indicated, shall be fixed as soon as possible by mutual agreement. Until such agreement is arrived at, the point on the southern shore of Lake Tchad, situated 35′ east of the meridian of the centre of the town of Kuka, shall be the terminal point.

Article 3.—Any part of the line of demarcation traced in this agreement, and in the preceding agreements, shall be subject to rectification by agreement between the two Powers.

Article 4.—The territories to the west of the boundary line traced in the present agreement shall fall within the British sphere of influence, and those to the east of the line shall fall within the German sphere of interest.

It is, however, agreed that the influence of Germany, in respect to her relations with Great Britain, shall not extend eastwards beyond the basin of the river Shari, and that Darfur, Kordofan, and Bahr-el-Ghazal, as defined in the map published in October, 1891, by Justus Perthes, shall be excluded from her influence, even if affluents of the Shari shall be found to lie within them.

Article 5.—The two Powers make, as regards the extended spheres of influence traced in the present agreement, a similar engagement, as regards their respective spheres, to that taken in the preceding agreements.

They agree that neither will interfere with the sphere of influence of the other; and that one Power will not, in the sphere of the other, make acquisitions, conclude treaties, accept sovereign rights, or protectorates, or hinder or dispute the influence of the other.

Article 6.—Great Britain recognizes her obligation to apply, as regards the portion of the waters of the Niger and its affluents under her sovereignty or protection, the provisions relating to freedom of navigation enumerated in Articles 26, 27, 28, 29, 30, and 33 of the Act of Berlin of February 26, 1885. Germany on her side recognizes her obligation, under Article 32, to be bound by those provisions as regards the portion of the waters under her control.

This agreement will hardly be admitted by France, which has claims on Adamaua and on other countries here divided. The treaty of Dec. 24, 1885, between France and Germany assigned to the former Power the territories south of a line following the Campo River *from its mouth up to a point where it meets the meridian of* 7° 40′ *east of Paris, and from that point following the parallel up to its meeting with the meridian of* 12° 40′ *east of Paris.** Since that time the French have made

* Paris is 2° 20′ 14″ east of Greenwich. The Campo river flows in a general southwesterly direction and enters the Gulf of Guinea in 2° 20′ N. Lat.

treaties with tribes on the Shari river and have annexed the valley of the Sanga.

There will be discussion before Germany finds herself in a position to profit by the generosity of England.

English and German East Africa.—The British Government has made public the text of the agreement between Great Britain and Germany respecting their boundaries in East Africa.

This agreement was signed at Berlin on the 25th of July, 1893. It provides that the boundary from the Indian Ocean to the northern side of Kilima-Njaro shall start on the coast from high-water mark on Ras Jimbo, and run thence in a straight line to the point at which the parallel of 3° 40′ 40.3″ S. cuts the eastern bank of Lake Jipe. On the coast, however, the line is to be deflected along the northern bank of the Jimbo Creek, so as to leave the foreshore in the British sphere as far as the eastern mouth of the Ngobwe Ndogo. The line then follows the Ngobwe Creek to its end, and runs to the point where the straight line from the coast strikes the rising ground on which the village of Jasini stands.

At Lake Jipe the boundary follows the eastern shore and then the northern shore, to the northern bank of the Rufu River to a point an English mile east of the German road from Marangu to the coast.

From the Rufu River it is to run to the summit of Chala Hill, then through the Chala Lake and straight to the Useri camp, at the base of Kilimanjaro.

Five maps show the boundary and the preliminary surveys.

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The limit as described is, with slight modifications, the one laid down in Map No. 4, of Kiepert's Deutscher Kolonial-Atlas, issued at the beginning of this year.

MATABELELAND.—The Matabele country is a tableland lying between 18° and 22° S. Lat. and 27° and 32° E. Long. It has a healthful climate, and a fertile soil watered by streams, which flow on the south towards the Limpopo and on the north to the Zambezi; and it is said to be rich in gold. Like Mashonaland, which the Matabele claim as their own, Matabeleland lies within the sphere of the British South Africa Company's activity, as that sphere is defined in the language, less precise than liberal, of the charter, in these terms:

"The principal field of the operations of the British South Africa Company shall be the region of South Africa lying immediately to the north of British Bechuanaland, and to the north and west of the South African Republic, and to the west of the Portuguese dominions."

Southwest of Matabeleland lies the kingdom of Khama, who is lending his aid to the South Africa Company.

The Matabele are descended from a Zulu tribe which emigrated to the north in 1835, and they form a well-organized military state, always prepared for a raid upon its neighbors. Dr. Emil Holub, the Austrian traveller, describes their discipline as Spartan in its severity. They are, he says, soldiers and that only. They form the *élite* of the native fighting men of South Africa; and he estimates that at least 150,000 human beings have perished in their annual raids, in which they kill the men and capture only women, boys, and cattle.

MAP OF THE TERRITORIES CLAIMED BY THE

(Reduced from the map published

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THE BRITISH SOUTH AFRICAN COMPANY.

blished by the Company.)

This testimony agrees with that of all those who are acquainted with the Matabele. The Rev. A. M. Hartman, S. J., who lived as a missionary in Matabeleland for three years, declares that unless a stop is put to the cruelties of the Matabele, the Mashonas, their principal victims, will be exterminated. He adds:

Every care is taken that the warlike spirit of the nation is kept up. Means for this are:—

a. Their war songs are constantly on their lips.

b. The big war dance, kept every year at Buluwayo, where all the regiments meet together, feasting on beef and beer.

c. The very rites they perform at that festival have no other object but to inspire them with fearless courage. At this occasion human flesh is cooked, together with various kinds of medicines. This human flesh is taken from slain people. Superstition plays a great part in the performance of those ceremonies, all of which have relation to their war expeditions.

The old indunas fan the flames of bloodthirst by sarcasm and irony. "You are but girls," they say to the young warriors and "beardless boys," "How is it that you never yet bathed your assegais with human blood?" etc. In general, cowardice is looked upon as the greatest disgrace a Matabele can bring on himself.

Those who have known Lobengula, the king of this bloodthirsty nation, do not agree in their opinions of his character.

According to some he is a monster of cruelty and perfidy; but others have better words for him, and the evidence of Mr. Harold Crichton Browne is wholly in his favor. That gentleman says, in a letter written to the London *Times* from the Garrick Club, on the 15th of October:

"I was practically taken prisoner and conducted to his capital when trespassing in his territories, where I had no business to be, and when occupied in a way that might reasonably have given rise to suspicion (I was photographing and making notes for maps), and had I been assegaied on the spot I should, if I may be permitted the Hibernianism, have had no valid objection to offer. But I was treated with great kindness, and was courteously received by the king, and feel bound therefore to protest against the representation of him as a wholesale butcher, delighting in his trade."

Lobengula and his people, like most savages, take

themselves seriously and think they have a mission to perform. It might surprise them, if they could be made to understand it, to see the map which the British South Africa Company published in November. In this map the Company assigns to itself, from motives of practical philanthropy, all the territory lying between the Limpopo and the Zambezi rivers and extending to the eastward as far as the meridian of 33° E. Long. This includes the kingdom of Lobengula as well as Mashonaland ; and it is said that the protection of the Mashonas against their fierce neighbors was the consideration that moved the South Africa Company to begin the war, which seems likely to open a field for enterprise and to add also, in the fulness of time, a colony to the British Empire.

Whether the gold-reefs prove to be extraordinarily rich or not, it will be a gain to the cause of humanity to restrain the Matabele, as the English will restrain them, from working their pleasure upon an inferior race ; the English themselves being set free, by civilization and the lofty sense of duty, from the temptation to abuse their own power.

The warlike nature of the Matabele may be so far modified, under control, as to make them energetic workers in the development of British South Africa ; and it may be hoped that in a few years they will have ceased to dream of bathing their assegais, and will have learned of their civilized conquerors to draw first blood and to flesh their maiden swords.

It was while the crusade against the Matabele occupied the public mind that Capt. Lugard, in his book, *The Rise of Our East African Empire*, denounced the

slave trade now carried on in the British Protectorate of Zanzibar. The indifference to the wrongs of the East African negroes living under the English flag offers a painful contrast to the fiery zeal for the protection of the innocent Mashonas, though it may be explained by the fact that Zanzibar is a recognized British possession, while the country of the Matabele is a desirable domain yet to be acquired.

Contrasts are not wanting in the record of the English excitement concerning the Matabele war, and one of the most impressive is presented in the following utterances :

The Bishop of Derry, in a sermon preached in Westminster Abbey on the 21st of September, said that he longed to see Mashonaland open to civilization and to the missionaries of the Cross. He believed we should not tell the few brave men in that far land

"to act out the Sermon on the Mount whenever it was advantageous to them, but if they found the contrary course advantageous to drop it and have recourse to the sword."

If the Bishop forgets who was the Author of the Sermon on the Mount, others remember Him. On the 7th of November, Mr. J. E. Ellis, M.P., presented to Mr. Gladstone the following memorial, signed by the Clerk of the quarterly meeting of the Society of Friends :

"We have been deeply pained by the information communicated in the public Press of the appalling slaughter which has taken place in Matabeleland by the armed forces of the Chartered Company of South Africa. We strongly feel that such methods of prosecuting commercial enterprise are entirely incompatible with the Christian religion, and we regard it as a disgrace to our nation's profession of Christianity that in this, as in so many preceding instances, the settlement of our countrymen as colonists in uncivilized lands has been accompanied by wars of extermination. We would press upon the Government the importance in any future arrangements of doing nothing to sanction or facilitate such military inter-

ference with the rights and liberties of native races, children with ourselves of one common Father. In view of the responsibilities now devolving on our Government, we trust that its action may be directed to insuring the treatment of the Matabele, not in a spirit of hostility and greed, but of justice, humanity, and mercy. We believe that this policy of justice and humanity is not only right in itself, but is absolutely essential if Great Britain is to be able with any effect to exercise her influence to prevent similar high-handed encroachment on native races by other civilized Powers."

THE ELDER EXPLORING EXPEDITION.—Vol. XVI. of the *Transactions* of the Royal Society of South Australia is reserved for the scientific results of the Elder Expedition of 1891, in South and West Australia. Of this volume Parts I. and II. have been issued. These contain Reports on the Vegetable Exudations, among which is a true Manna (*Myoporum platycarpum*), the first announced from Australia; on Lepidoptera, few in number; on Coleoptera, more numerous, and among them a *Scaritid*, which Mr. Blackburn proposes to call the *Trichocarenum Elderi;* on Land and Fresh-water Mollusca, of which seven species were collected; on Hymenoptera; on the Geology of the region traversed, with a list of rock specimens from east of the Murchison Goldfield; on the Meteorology, with detailed observations for every day, through nine months; on the Lichenes and Fungi, and on the Orthoptera and the Vertebrata. Of these last the most numerous are the lizards, of which thirty-seven species were collected. Four of these were previously unknown: *Diplodactylus Elderi*, the *Amphibolurus scutulatus*, the *Egernia Kintorei* (named in honor of the Earl of Kintore), and the *Lygosoma melanops*.

The two Parts are illustrated by seven plates and a large colored map, showing the geology of the route from Peake Telegraph Station to Annean Station.

WASHINGTON LETTER.

WASHINGTON, Dec. 28, 1893.

ARCTIC EXPLORATION.—An expedition has been proposed having for its object the exploration of the unknown coast west of Ellesmere Land, the eastern strip of which only is represented on the charts of that part of the world. The party of explorers will be led by Mr. Robert Stein of the U. S. Geological Survey. Mr. Stein submitted his plan to the Board of Managers of the National Geographic Society for an opinion. A committee of that Society was appointed, consisting of Gen. A. W. Greely, Mr. W. J. McGee, and Mr. Marcus Baker, to whom were afterward added Commodore G. W. Melville, engineer-in-chief, U. S. Navy, and Dr. W. H. Dall. The report of the committee, presented and adopted December 8, is of general interest. It says:

"The plan contemplates the occupation of a station on the shores of Ellesmere Land in Jones Sound for about fifteen months, from, say, July, 1894, to September, 1895. Equipments for permanent camp, coast and inland explorations, and food supplies for two years are to be taken with the party, which will be landed at the designated point by a Scotch or Newfoundland whaler in 1894, and taken off by the same vessel in the autumn of 1895. At the camp observations will be made of terrestrial magnetism, meteorology and hydrography, while geological researches can be made in connection with the explorations of the adjacent unknown regions about Jones Sound and Belcher Channel. The estimated cost of the expedition is $10,000.

"Concerning this project your committee unanimously concur as to the following propositions:

"(1) They believe that this expedition to a point lying in the path of the whalers who annually visit the western waters of Baffin Bay is thoroughly safe and practicable; that it is desirable for scientific purposes and for geographic exploration; and that no part of the Arctic regions gives promise of greater opportunities for extensive discoveries, with a minimum of danger, hardship and expense.

"(2) They believe that the estimate of $10,000 is sufficient to cover the necessary expenses, but that the returns from the expedition could be materially enlarged by an additional sum of $3000 to $4000.

"(3) The detailed data and plan presented by Mr. Stein favorably impress the committee as to his energy, persistence and knowledge of the problems involved in the project. They believe, however, that the selection of the personnel and the fitting out of the expedition should be made under the advice of three recognized experts, one regarding maritime outfit, one on scientific outfit, and a third for regular supplies and land explorations.

"(4) Your committee recommend that there be appropriated out of the treasury of the National Geographic Society such sum as the Board may see fit, at the proper time, in aid of this expedition."

Gen. Greely, Commodore Melville, and Dr. T. C. Mendenhall have consented to act as advisers, in accordance with the committee's recommendation.

In connection herewith, the following letter, from Colonel H. W. Feilden, naturalist to the Nares expedition of 1875–76, may be of interest :

"My Dear Sir : I told you in my last that I had written to Sir George Nares, enclosing your prospectus. I also sent him one of your letters to read. I heard from him this morning, and he writes, 'Stein is evidently on the right track.'

"If I can assist you further, let me know. I take the same interest in American Arctic enterprise as in British ones, and my good wishes and sympathies are as cordial as if your expedition carried the Union Jack instead of the Stars and Stripes. I will tell you a tale in connection with Arctic story, that I do not think has ever seen the light.

When Aldrich returned to the ship from his wonderful sledge journey round the north shore of Grinnell Land in 1876, we were discussing at the ward-room table a suitable name for the northernmost point of land he had reached. Various names were suggested, but I well remember Sir George Nares silencing us, by saying, 'This is the northernmost point of America yet reached ; remember what Americans have already done in Smith Sound. I shall therefore dedicate the highest point yet reached in America to our kinsmen ; I shall call it 'Cape Columbia:' and Sir George's decision was received with acclamation.

"Believe me to be, very truly yours, H. W. FEILDEN."

The expedition will turn to the westward of Baffin's Bay, skirting the southern extremity of Ellesmere Land. Former explorers have pursued their way towards the Pole through the channels which divide the Ellesmere-Grinnell-Grant Land from Greenland, while the

western shore of Ellesmere-Grinnell Land has been neglected, except one point touched by Lockwood and Brainard.

Mr. Stein does not believe it is necessary to defend Polar exploration. He believes that the main objects of these routes into the Arctic sea justify the discomforts and dangers which are too often the only reward of the explorer. He points out that the meteorology of the Arctic forms the keystone of the whole science of the weather. The science of geodesy will remain imperfect until the pendulum has been swung close to the very Pole. Important additions to the science of magnetism may be looked for from researches in the vicinity of the Magnetic Pole. Especially the fascinating phenomenon of the aurora, the grandest instance of light without heat, may yield remarkable disclosures when studied in the area of its greatest intensity.

Mr. Stein proposes to start next May, and to trace this unknown shore, so far as can be done in one summer, from a base of operations always within easy reach. That base of operations will be at the entrance of Jones' Sound, on the route pursued by the whaling steamers which annually frequent the whaling grounds in Lancaster Sound, about eighty miles south of Jones' Sound. A party of not less than eight men will leave St. John's, Newfoundland, on one of these whaling steamers in May, 1894, and return in October of the same year. At the base the party will erect a house fit to winter in, should occasion arise, with provisions enough for two years. Two men will remain to guard the depot and make observations. The others will travel westward and northward along the unknown

shore as far as they can go. A preliminary trip of two weeks will determine the best mode of travel, and will serve at the same time to establish an advance depot. At the end of eighty days the explorers will be back at the base.

An unexpected addition of interest accrues to this project from the advices received from Dundee concerning the wreck of the schooner *Ripple*. If the crew of that schooner, five in number, among them the young Swedish naturalists Björling and Kalstennius, still survive, they are almost certainly on Ellesmere Land, near the point where Mr. Stein expects to land. No other relief expedition could reach them any sooner than the whaler which is to convey Mr. Stein's party to their base of operations, so that whatever is possible in the way of rescue will certainly be accomplished by this expedition.

Topographic Map of the United States.—The past year has proved an extremely successful one for the prosecution of topographic work by the United States Geological Survey. The season has been long, extending from May to November, with exceptionably few bad days, so that the output of the work has been proportionately great.

Thirty-three surveying parties have been maintained, scattered over the country from New York to California. Altogether 134 sheets have been surveyed, of which 118 were upon a scale of one mile to one inch; the remaining 16 being upon a scale of two miles to one inch. The area comprised in these is about 33,500 square miles.

A little work has been done in the southern Appalachian region, mainly in the coal regions of the Cumberland plateau of Tennessee. Work has been done in the iron regions of northern Tennessee and Minnesota.

The most extensive operations have been conducted upon the great plains of the Dakotas, Nebraska, Kansas, Oklahoma and Texas, where eight parties have been at work, and where, owing to conditions very favorable for surveying, the output has been large. In North Dakota eleven sheets have been surveyed; in South Dakota thirteen sheets; in Nebraska three parties have surveyed no less than thirty-seven sheets; in Kansas four sheets, completing that part of the State which lies east of the 100th meridian; in Oklahoma eleven sheets, completing the original area which was open to the whites, together with considerable parts of the Cherokee strip and other adjacent territory. All these sheets are upon the scale of one mile to one inch. In Texas three sheets upon a scale of two miles to one inch have been surveyed.

In the Black Hills of South Dakota two sheets have been surveyed, practically completing the mountain country. In Montana two sheets upon the two mile scale, embracing the region recently set off as a timber reserve east of the National Park. In Colorado a small area upon the mile to an inch scale in the Gunnison country. In California four sheets about the peninsula and bay of San Francisco, and three sheets in southern California in the neighborhood of Los Angeles. In Oregon the equivalent of two sheets in the southwestern part of the State, and in Washington work has

been commenced upon the shores of Puget Sound. In Idaho 1000 square miles have been mapped in that *terra incognita*, the Salmon River mountains.

In the State of New York extensive operations have been carried on, the Legislature at its last session making an appropriation of $24,000 for co-operating with the United States Geological Survey in the preparation of a survey of its area. About $50,000, half of which has been expended by the United States, has been devoted to a survey of this State, and during the season twenty-seven sheets, all upon a scale of one mile to one inch, have been completed. These are scattered over different parts of the State—the Hudson and Mohawk valleys, the Adirondack, the neighborhood of Watertown, Rochester, Buffalo, Niagara Falls, and Ithaca Altogether the season's work adds 5000 square miles to the mapped area of this State.

It is quite forty years since the commencement of the efforts of the American Geographical Society to secure an accurate map of the State of New York. The culmination of these efforts in the near future may be said to have had its origin in the movement made by the Society in 1875, in the appointment of a committee consisting of Samuel B. Ruggles, Elbridge T. Gerry, Francis A. Stout, William Remsen and James T. Gardner to urge the Governor and Legislature to sanction an accurate survey of the State. With the approval of Gov. Tilden, an act was passed in 1876 appropriating $20,000 "for making an accurate trigonometric and topographical survey of the State." After eleven years the commissioners appointed under this act reported that the primary triangulation was com-

pleted for about two-thirds of the State, and recommended to the Legislature that the topographical work should be continued and finished with the coöperation of the United States Geological Survey. This proposition was approved by the State authorities. The results, as seen above, are being rapidly developed.

Other States have similarly taken advantage of the propositions of the General Government to aid in securing accurate topographical delineations of the whole of the United States. The plan is an admirable one, both parties being immensely interested in the prosecution and earliest possible completion of the work. The saving in time may be counted by decades, while the saving in money by the division of expenses brings the work within the reach of every State in the Union. The surveys of Massachusetts, New Jersey, Connecticut and Rhode Island have been completed, and the map sheets are available in portfolio, atlas, or wall map form, each State having a supply at its own disposal.

The value of this topographic work which is being prosecuted so actively throughout the country has been shown by the great and increasing demand for the maps by all kinds of industrial enterprises.

In the geologic branch of the survey, owing to large reductions in appropriations by Congress, there was during the year extensive reorganization and curtailment of work. The energies of the force were almost wholly given to completing office work on field observations already made and data gathered. This resulted in the completion of a large number of geologic atlas sheets. No field work was done in the paleontologic branch. Work in chemistry was confined to the absolutely essen-

tial routine analyses needful in connection with the work of the geologists. The work on the physical characteristics of rocks and in terrestrial physics, which has yielded many valuable and interesting results, was entirely discontinued.

The Secretary of the Interior, in reviewing the work of the Geological Survey, says :

"The value to scholars, engineers, miners and to commerce of the work carried on by the Geological Survey is attested by the growing demand for its maps, memoirs and reports, and by the increased value of the mineral product of the country, which has increased at a much higher rate than the increase in population, largely aided, it is believed, by scientific direction and official research."

TOPOGRAPHIC MAP OF BALTIMORE.—The authorities of the city of Baltimore are engaged on a topographic survey of that city, which when completed will place her in rank of the very few cities of the world with an exact survey. The data furnished will be second to none in the country. The scale of proportions will be 200 feet to one inch, or, decimally, 1:2400. It will be a contoured map, showing the differences of level of every five feet. The built-up portion of the city will be represented in addition upon a very large property map, on which one inch will represent only 40 feet of ground space.

NORTH PACIFIC PILOT CHART.—This important project of the Hydrographic Office awaits an appropriation by Congress to cover the expense—about $10,-

000. No publication of this office has the popularity of the North Atlantic Chart, which the Pacific Chart will in many respects resemble; such as the ice fields and bergs, routes for steamships between American and Asiatic ports, predictions as to weather, warnings of storms, drift of derelicts, the most serious of all dangers encountered by navigators; unusual information respecting the fishing ground off the coast of Alaska and eastern Siberia, areas of fog and rain.*

The Navy Department has arranged to clear the path of navigation between New York and the mouth of the Mississippi of all wrecks and derelicts that may be regarded as dangerous. The British Government has promised to co-operate in this movement for the safety of navigation, and will despatch a vessel on a similar errand on the path usually followed by trans-Atlantic steamers.

North Atlantic Pilot Chart.—This chart for January has improved and valuable new features. First of all a base chart of improved execution, and printed on better paper than formerly. The added features are, U. S. weather and temperature signals; improved delineation of the U. S. storm signals; European gale and storm signals; lines of equal magnetic variation for every degree; a method of delineating reports concerning ice; a storm-track gauge; a method of delineating the region of equatorial rains; and an improved land tint. It should be know as the New Pilot Chart.

* Since the above was written the Hydrographic office has issued "The Proposed North Pacific Pilot Chart, January, 1894." H.

XUM

NEW GEOGRAPHY.—The explorations of the U. S. Fish Commission steamer *Albatross* during 1889–91 as described by Lieut.-Commander Z. L. Tanner, and recently published by the Fish Commission, extended from Bering Sea to Central America and the Galápagos Islands. The investigations in Alaskan waters and on and about the Galápagos Islands are important in scientific results and full of geographic interest. Prof. Alexander Agassiz has prepared and published * the general sketch of the expedition and operations in dredging off the west coast of Central America to the Galápagos, to the west coast of Mexico, and in the Gulf of California from February to May, 1891.

Prof. Robert E. C. Stearns prefaces a report on the mollusk-fauna of the Galápagos Islands † with an account of the geographical and physical characteristics of the islands; also a discussion of their volcanic origin or origin through subsidence, climatology, etc.

Prof. Dall ‡ describes a large body of water known as the Gulf of Penjinsk, lying in the northeastern angle of the Okhotsk Sea. It extends in a northeast and southwest direction for about 300 miles, and has a greatest width of 140 miles. As far as recorded, this arm of the Okhotsk Sea has not been visited by a scientific explorer.

BOUNDARIES.—The boundary lines of the Yellowstone Park remain unmarked after a lapse of more than twenty years since the region was set apart. There are also some undetermined questions as to the location

* Bulletin Museum of Comparative Zoology, Harvard College, Vol. XXIII., No. 1.

† Proceedings of the U. S. National Museum, Vol. XVI.

‡ Proceedings of the U. S. National Museum, Vol. XVI.

of portions of the northern and western boundaries. Capt. Anderson, U. S. A., in charge of the Park, speaking of the accommodations for travellers and visitors, says: "The prices are lower than obtain in any of the first-class summer resorts of the country," and he sees no reason why a stay in the Park, rather than a tour of it, should not be the rule. He recommends the preparation and publication of a popular description of the Reservation and its wonders, in order to familiarize the people with this remarkable region. In Germany the pupils of the common schools are taught of this Park, and the result is abundantly shown in the large number of Germans who annually visit it.

The boundaries of Sequoia Park (a tract 24 miles long, by from 6 to 12 miles wide, in a S. E. direction from Fresno, California) have never been run. Moreover the region is inaccessible, owing to the absence of roads or practically even of trails. The Giant Forest—the great feature of this Park—is probably the most magnificent body of timber in the world. It occupies an area of about 3 miles square on an elevated plateau east of the Marble Fork. Capt. James Parker, U. S. A., in charge of this Reservation, says: "It is a continuous, dense forest of splendid trees, nearly all towering 300 feet or more. The giant Sequoia, with its tremendous trunks, 15 to 25 feet in diameter, and shafts whose first branches leave the trunks at parts higher than the highest church steeples, here attains its finest growth and greatest dimensions."

The boundary line between North and South Dakota has been ascertained, surveyed and distinctly marked by suitable and permanent monuments.

XUM

The preliminary surveys needed for the location of the Northwestern boundary line between the United States and Canada are advancing towards completion. The same may be said as to the boundary line between Alaska and British Columbia; both under the direction of the Coast Survey. The same office has begun surveys for the location of the boundary line between California and Nevada from Lake Tahoe to the Colorado River; and for the adjustment of the line between Pennsylvania and Delaware.

The Government has sanctioned and made obligatory the use of the metric system of weights and measures in all transactions at United States custom-houses, and Prof. Mendenhall suggests July 1, 1895, as a suitable date for the inauguration of this reform.

The Coast Survey and the Hydrographic Office have each issued revised editions of catalogues of their charts and other publications.

It is suggested that the Arizona petrified forest, located in the eastern portion of Central Arizona, near Holbrook, on the Atlantic and Pacific Railroad, be set aside as a national park. It is estimated that there are about 10,000 acres in the forest, which consists of huge logs from six feet down in diameter. The ground is nearly all covered with trunks and limbs of petrified trees of every size and color, quantities of which have been removed for ornamental purposes.

It is said to be the most wonderful and beautiful centre of petrified woods known to scientists.

NICARAGUA CANAL.—It is stated that the Commerce Committee of the House of Representatives unanimously favor the proposition of governmental control of

the Nicaragua Canal. In the Senate a resolution has been adopted providing for a Joint Commission to go to Nicaragua for the purpose of examining the state of the work on the canal, so as to report to Congress on the advisability of the Government taking charge of the enterprise. The resolution provides for the appointment of a Committee of three Senators and three Representatives to examine into and report upon the present condition of the canal and the prospect of the completion of the work under the control and with the means to be raised by the Company, and such other matters connected with the construction and control of the canal as may better enable Congress to determine what legislation, if any, is proper and necessary for the prosecution of the work and the general advantage of the people of the United States. The Commission may proceed to Nicaragua and Costa Rica and conduct its examinations, accompanied by a detail of army or navy officers and other necessary employés. Senator Frye argued that the Government could build the canal for $75,000,000 ; that the bonds would sell readily while paying an interest of only 4 per cent., and that Government control would permit a lowering of rates to $1.00 a ton, and a profit would result at that figure. He regretted, as did Senator Morgan, the failure of the Senate in 1885 to ratify the Frelinghuysen treaty with Nicaragua, by the terms of which the United States would have secured a strip of land twelve miles wide, connecting both oceans, that would have been invaluable to us. It is said that that treaty lacked but one vote of the necessary two-thirds vote, which would have secured its ratification.

HISTORICAL MANUSCRIPTS IN THE DEPARTMENT OF STATE.—The historical manuscripts belonging to the Federal Government and preserved in the Bureau of Rolls, Department of State, have never been adequately described, catalogued, or indexed. Nor is there a general knowledge or appreciation of the inestimable value of this collection. It embraces the records and papers of the Continental Congress (bound in about 400 volumes); the public and private letters and other papers of Washington before and from the beginning to the end of the Revolution, and from that date coming down to the end of his life; his journals, diaries, and original letters received by him; the papers of Franklin, Madison, Monroe; the collected papers of various public men; letters and papers appertaining to or forming part of the archives of the Convention which formed the Constitution of the United States; records of the early States and Territories, etc.

It has been the policy of the Department to make no display of these priceless treasures, nor to give the general public the slightest clue by catalogue, index, or otherwise of their contents.

But the dawn is near. There has recently been printed "Bulletin of the Bureau of Rolls and Library, Department of State, No. 1." A paragraph in the "Introductory Note" of this Bulletin says: "The most practicable plan for making known and utilizing the current miscellaneous index of the general collections —an index devoted to papers to the substance of which all clue is lacking—is found to be the publication of a series of Bulletins, the present being the initiatory number. . . . It may be found possible occasion-

ally to print a complete catalogue of some particular class or collection of papers." It is understood that calendars of the correspondence of Jefferson, Madison and Monroe are ready for the press—in fact the Monroe calendar and index is promised as Bulletin No. 2.

In the Bulletin just issued we find (1) a list (22 pages) indicating by numbers the present arrangement of the papers of the Continental Congress, beginning with its original or rough journals, from Sept. 5, 1774 to March 2, 1789, in 39 folio volumes, and the transcript of the journals from September 5, 1775 to January 20, 1779 in 10 vols. These journals have never been printed in full. A note on the fly leaf of volume I. of the transcript is as follows: "*N.B.* The passages and resolutions which in this and the following books are crossed were all passed by Congress; but a Committee having been appointed to revise the journals for publication, such parts as the House determined on the report of their Committee should not be published were ordered to be crossed or marked so as not to be transcribed for publication. As the crossing defaced the minutes, another mark was introduced which was by dots in the margin.—Chas. Thomson, Sec'y."

These journals are followed by the secret and "the more secret journals," in 10 volumes; History of the Confederation, 1775–1791; Letter books of the Presidents of the Congress—Henry Laurens, John Jay, Samuel Huntington, Thomas McKean, John Hanson, Elias Boudinot, Thomas Mifflin, Richard Henry Lee and Arthur St. Clair—5 vols.; Reports of various Committees of the Congress, and memorials, petitions and remonstrances, 41 vols.; Articles of Confederation;

(This volume contains the first drafts of a confederation by Franklin and Dickinson); Intercepted letters from zealous royalists and others, 2 vols.; Letters and papers of Thomas Paine. A series of letters from the Committees of Safety, and Governors of the several States, 15 vols.; Letters to the Presidents of Congress, on a great variety of important subjects, 24 vols; Letters from American and foreign Ministers, Agents and Commissioners; Reports and accounts of the Board of Treasury and Board of War, 1776–1789, 36 vols.; Letters from Generals Washington, Schuyler, Gates, Greene, Lafayette, Heath, Charles Lee, Lincoln, Moultrie, Putnam, Mercer, Sullivan, Howe, Wayne, St. Clair, Benedict Arnold, Stark, Armstrong, Pulaski, Steuben, DeKalb and others, during the period of the Revolution, 51 volumes.

The papers in the Bureau of Rolls being arranged by "chapters," we find next (2) in this Bulletin an index of Chapter A. This chapter covers the papers of the Continental Congress above described. The index extends from A to L, 77 pages.

The last paper (3) in this interesting Bulletin is a Documentary History of the Constitution, derived from the records in the Department of State 1786–1870: Chapter 1; being the period preceding the convention of 1787.

The publication of this Bulletin is a great concession, especially to the large class engaged in historical investigations. It is initiatory only, but will probably lead to large and highly satisfactory results. Mr. Andrew H. Allen, Chief of the Bureau, has had the direction and supervision of the work, the details of which have

been critically carried out by Mr. S. M. Hamilton and Miss Linda Lawrence.

The means at the disposal of the Department are entirely inadequate to provide an edition large enough for "general distribution." Prominent libraries will be supplied and individual applications will receive such attention as their merits seem to require. H.

OBITUARY.

REV. PHILIP SCHAFF, D.D., LL.D.

The Rev. Philip Schaff, Vice-President of the American Geographical Society, died at his residence in this city, October 20, 1893.

Dr. Schaff was born at Coire, in the Grisons, January 1, 1819, and received his education there and at Stuttgart, Tübingen, Halle and Berlin.

He took his degrees of Ph.D. and B.D. at the University of Berlin in 1841, and received the honorary degree of D.D. from the same University in 1854. He was a favorite pupil of Neander, and Gregory XVI. allowed him, during a winter spent in Rome, the privilege of working in the Vatican Library.

In 1842 he lectured in Berlin on Biblical Exegesis and Church History. In 1844 he was recommended by Neander, Krummacher and other scholars, to the Synod of the German Reformed Church in America as instructor in the Theological Seminary at Mercersburg, Pennsylvania. He was elected and entered upon his duties the same year; but his liberal sentiments excited opposition, and in 1845 he was tried on a charge of heresy and acquitted. He continued his labors at Mercersburg for nearly twenty years, and in 1862 became Professor of Ecclesiastical History at Andover, and afterwards filled the same chair at the Hartford Theological Institute. In 1870 he was called to the Union Theological Seminary in this city as Professor of Sacred

Literature, and he became Professor of Church History in the same institution in 1887.

Dr. Schaff was a man of unwearied activity, whether at home in America or during his frequent visits to Europe, for purposes of work or study. He was one of the founders and the Honorary Secretary of the American Branch of the Evangelical Alliance, and he was President of the American Committee on the revision of the King James Bible. In 1888 he founded the American Society of Church History, of which he was chosen President.

He was throughout his career an indefatigable student, and he wrote much and well, both in German and in English. Among his works are "The History of the Apostolical Church," issued in 1853; a "Sketch of the Political, Social, and Religious Character of the United States"; "Germany, its Universities, Theology, and Religion"; A German hymn book; "The Christ of the Apostles"; "The Person of Christ, with Replies to Strauss and Renan"; "The Civil War and the Overthrow of Slavery in America," "Christ in Song," "Revision of the English Version of the New Testament," "The Vatican Council," "History and Collection of Creeds of Christendom," "Harmony of the Reformed Confessions," "Through Bible Lands," a dictionary of the Bible; "Library of Religious Poetry," in editing which he was associated with Arthur Gilman; a "Companion to the Greek Testament and the English Version," "Historical Account of the Work of the American Committee of Revision of the English Version," "Christ and Christianity," and "Church and State in the United States, or the American Idea of

Religious Liberty and its Practical Effects." He also edited an adaptation of Lange's "Critical, Theological, and Homiletical Commentary on the Bible," and the "International Revision Commentary on the New Testament;" the "Select Library of Nicene and Post-Nicene Fathers," in 14 vols.; a second series, in conjunction with Principal Wace; the "Schaff-Herzog Cyclopædia of Religious Knowledge," and a Supplement, the "Encyclopædia of Living Divines," with the Rev. S. Macaulay Jackson, as co-editor. He was a member of many learned societies and a constant contributor to European and American periodicals.

In 1892 his health failed, but he soon rallied and applied himself with unabated energy to the labors in which he delighted. He was greatly interested in the Parliament of Religions at the Chicago Exposition, which he visited only a month before his death, that he might not lose the opportunity of raising his voice once more in the cause of religious toleration and religious liberty.

It was while confined to his house by increasing weakness that Dr. Schaff received from the Council of the University of the City of New York the degree of D.D., conferred upon him on the fiftieth anniversary of his first course of lectures, delivered in Berlin.

With all his learning and his devotion to serious concerns, there was nothing austere in Dr. Schaff. The frank simplicity of his bearing was the outcome of the sweet and genial nature that endeared him to all.

At a meeting of the Council of the American Geographical Society, held at their rooms, No. 11 West 29th Street, on Saturday, December 2, 1893, the fol-

lowing Resolution, offered by President Daly, was unanimously adopted and, on motion, it was ordered that a copy of the same be engrossed and transmitted to the family of Dr. Schaff :

Resolved, That in the death of our late Vice-President, the Rev. Philip Schaff, this Society has lost a capable officer, and a most attentive and earnest member, and the world a great scholar. Eminent as an historian, whose history of the Christian Church, from the thoroughness of its execution and the clearness of its style, has been pronounced by the Theological Faculty of the University of Berlin the most notable monument of universal historical learning produced by the school of Neander, he combined with this erudition an extensive knowledge of ancient and mediæval geography, and took a deep interest in the geographical explorations, and the discoveries in physical geography, that have been so characteristic a feature of the present century:

That as the author of eleven works in German, and twenty-three in English, and as the editor of others with critical notes and translations, one of them of twenty-five volumes, besides addresses, reports and pamphlets, he went through an amount of intellectual labor and research rarely achieved within the limits of a life-time :

That in his writings, whether theological, political or literary, he was distinguished by a breadth of view and a most tolerant spirit, and that from his innate modesty in respect to his acquisitions, the amenity of his character, and the courtesy of his manner, he was an example in the fullest sense of a Christian gentleman.

SIR SAMUEL W. BAKER.

Sir Samuel White Baker, M.A., F.R.G.S., died on the 30th of December, 1893, at Newton Abbot, Devonshire.

He was born in London, June 8, 1821, and was educated there and in Germany.

In 1847 he founded a colony at Newera Ellia, in Ceylon, and resided there for eight years. In 1855 he engaged in the organization of the first railway in Turkey; and six years later set out with his wife, from Cairo, on an expedition to discover the source of the Nile. He spent a year in Abyssinia in the exploration of the Blue Nile; and in June, 1862, descended to Khartum, where he organized a party to explore the White Nile. The start was made in December and in the following February, at Gondokoro, Mr. Baker met Speke and Grant, who had come from the Victoria Nyanza. He supplied them with boats for the voyage to Khartum, and continued his own journey by land. On the 14th of March, 1864, nearly a year after leaving Gondokoro, he reached Mvutan Nzige, the lake to which he gave the name of Albert Nyanza.

He navigated the lake and then turned his face homeward, but did not reach Gondokoro until March 23, 1865. For this exploration the Royal Geographical Society awarded to him its Victoria gold medal, and on his return to England in 1866 he was created M.A. of the University of Cambridge, and was knighted.

In 1869 he took command of an Egyptian expedition sent to Central Africa, not so much for exploration as for the conquest and organization of all the countries bordering on the Nile. In this work he was en-

gaged for four years. He visited Cyprus after it became a British possession, and travelled in various countries of Asia and America. His writings on Ceylon, the Albert Nyanza, the Nile Tributaries, Ismaïlia, and others hold their place in the literature of travel.

Sir Samuel was an Honorary member of the Geographical Societies of Paris and Berlin, and of the Italian and the American Geographical Societies; and the Paris Société had honoured him with its Grande Médaille d'Or.